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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

OCTOBER, 1871.



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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
STATISTICAL DIVISION,
Washington, D. C., October 19, 1871.

SIR: I present herewith, for publication, a digest of the reports of our correspondents upon the condition of the growing crops, and the product and quality of those harvested, together with a variety of notes of reporters in relation thereto. Also a number of general extracts from the communications of regular correspondents, with articles upon the drought and the great fires in the Northwest, the jute plant, cundurango, entomological record, scientific notes, facts from various sources, market prices of farm products in several cities, meteorological tables and notes, &c., &c.

Respectfully,

J. R. DODGE,
Statistician.

Hon. FREDERICK WATTS, *Commissioner.*

CONDITION OF THE CROPS.

The influence of drought and of the unusually low temperature of September have been unfavorable to the ripening of fruits and to the maturing of corn and other crops. No general or serious damage has resulted to corn, a large portion of the crop being well advanced by the high temperature of August before the recurrence of frost. The drought of midsummer has been almost unbroken in the West up to the date of these returns, interfering greatly with the seeding of winter grain, and with the germination and growth of the areas which farmers have been able to plant.

CORN.

In Maine and Vermont injuries from early frosts are reported, and in portions of the former State from grasshoppers. The other New England States indicate comparatively high condition. On Lake Ontario an injurious frost is recorded as early as the 21st ultimo, and injuries from frost are indicated in Erie, Franklin, Putnam, Ulster, and Wyoming. In some of the upper counties of New Jersey, and in the highlands of Northeast Pennsylvania, there will be immature corn from the same cause; in Greene, Pennsylvania, the fodder is much damaged, though the corn itself is too far advanced for material injury. In all the States between New York and Virginia, condition averages high. In Virginia the best soils well cultivated are covered with superior corn, and several counties report the best crops in several years; others have

suffered from drought, as Clarke, where "many fields will not make a bushel per acre," while in Albemarle one farmer will harvest fifty bushels per acre on 300 acres. The crop has been reduced in quantity and quality in the Carolinas by drought, mainly upon uplands of a light character. The bottom-lands in Georgia have been flooded to an unusual extent at various times, and especially during the great storms of August, and drought has parched thin soils; otherwise the crop would have been superior. Similar causes have reduced the yield in Alabama, and drought has wrought much damage in Mississippi and the more western Gulf States. Arkansas is the only Southern State that claims average condition for this important crop. The increase in area was so large that a greater product than that of last year may be expected in the cotton belt.

In the West, Kentucky, Illinois, and Michigan, report reduced condition in consequence of drought; and while local damages from this cause appear in other Western States, their average condition is high, and a large crop is certain. Some fields were injured by frost in Northern Ohio and in Michigan on the 21st ultimo. The yield in Wisconsin and Minnesota will be heavy, without injury from frost; and in Iowa, Nebraska, Kansas, and Missouri, another overflowing harvest of sound corn is assured.

The present condition, expressed as a percentage, 100 representing a good crop, is as follows: Above an average, New Hampshire, 111; Massachusetts, 103; Rhode Island, 101; Connecticut, 105; New Jersey, 102; Delaware, 108; Maryland, 103; Arkansas, 102; Missouri, 112; Ohio, 104; Wisconsin, 108; Minnesota, 110; Iowa, 114; Kansas, 119; Nebraska, 112.

Androscoggin County, Maine.—Extra crop.

Oxford County, Maine.—Many fields are worthless except for fodder, owing to the grasshoppers.

Hillsborough County, N. H.—Crop 15 per cent. less than last year.

Stafford County, N. H.—Being harvested in splendid condition.

Windsor County, Vt.—Fully three weeks later than last year.

Grand Isle County, Vt.—Ripened slowly, and many fields were seriously injured by frost.

Orleans County, Vt.—Frost killed the corn when it needed two weeks to mature.

Norfolk County, Mass.—Greatly injured by frost.

New London County, Conn.—Better than last year.

Ulster County, N. Y.—Frost, 21st September, killed corn.

Putnam County, N. Y.—Much better than anticipated.

Wyoming County, N. Y.—Late crop injured by frost.

Franklin County, N. Y.—Heavy frost, 16th September, killed corn before it was ripe.

Ontario County, N. Y.—Injured in some localities by the frost of 21st September.

Erie County, N. Y.—Injured by drought and frost. Little over half a crop.

Alleghany County, N. Y.—About an average crop, but not so good as last year.

Gloucester County, N. J.—Very heavy, but late. All cut.

Bergen County, N. J.—Seriously injured by the frost of September 21.

Burlington County, N. J.—The past month has been very favorable for ripening late corn, of which we have rather more than usual.

Indiana County, Pa.—Cut short by drought.

Westmoreland County, Pa.—Much of the crop will be soft, it is feared.

Wayne County, Pa.—Damaged by frost.

Greene County, Pa.—Killing frosts injured fodder where the corn was not cut up. Corn too far advanced to be damaged.

Northumberland County, Pa.—Crop unusually large and good.

Tioga County, Pa.—Ripened early and harvested in better condition than usual.

Baltimore County, Md.—Fair average yield of good quality.

Charles County, Md.—Crop exceeds the average for ten years past.

Albemarle County, Va.—A grand crop in some sections. One farmer, it is estimated, will harvest 50 bushels per acre on 300 acres. In other sections the crop is short.

Culpeper County, Va.—Early planted, a good average crop; late planted, about half a crop.

York County, Va.—Best season for corn since 1865.

- Madison County, Va.*—Short generally, but much improved by September rains.
- King George County, Va.*—Best crop for many years.
- Alexandria County, Va.*—All crops injured by drought.
- Clarke County, Va.*—Drought disastrous. Many fields will not make a bushel to the acre. On the river bottoms and along other streams there are some good fields of corn.
- Fauquier County, Va.*—Materially reduced by drought.
- Serpy County, Va.*—Very good. More corn than in any year for six years past.
- Gloucester County, Va.*—Large crops wherever the cultivation has been good.
- Wautauga County, N. C.*—Crop injured about 10 per cent. by a severe storm of rain and wind on the 1st of September.
- Caldwell County, N. C.*—Early summer very wet, followed by drought in July and August, reduced the crop very much.
- Bladen County, N. C.*—Crop reduced at least one-third by drought on all uplands. Bottom lands rather better.
- Franklin County, N. C.*—We have had one of the most disastrous droughts ever known in this county. Crops of all kinds have suffered. The corn acreage was largely increased, and a supply of corn will probably be made.
- Mecklenburgh County, N. C.*—Early crop much the best. The crop is light, and mostly nubbins, except in the bottoms. Crop in the county will not average over five bushels to the acre.
- Gaston County, N. C.*—Very short on high lands and very good on low lands. Drought reduced the upland crop two-thirds.
- Beaufort County, N. C.*—Late crop injured by drought, but as a whole the yield will be about an average.
- Craven County, N. C.*—Heavy, sound, and good.
- Person County, N. C.*—Injured by drought.
- York County, S. C.*—Three-fourths of a crop. It has turned out better than reported last month.
- Clarendon County, S. C.*—Yield per acre not so good as last year. Acreage increased 20 per cent.
- Lexington County, S. C.*—Fully up to an average; which, with the very promising pea crop, will supply abundant food for man and beast.
- Newberry County, S. C.*—The crop gathers light; much less than anticipated.
- Putnam County, Ga.*—Most unfavorable season within my recollection for both corn and cotton.
- Schley County, Ga.*—Sufficient for home consumption.
- Lumpkin County, Ga.*—Injured by storm in August by being blown down.
- Clayton County, Ga.*—Injured by wet weather in spring and summer, and severe storm in August.
- Butts County, Ga.*—Injured by drought and by storms.
- Crawford County, Ga.*—Nearly all the corn on the river and large creek bottoms destroyed by floods.
- Spalding County, Ga.*—Over an average. Where it was well cultivated it is superior.
- Habersham County, Ga.*—Bottom corn flooded while in the milk.
- Suwanee County, Fla.*—Some fields ungathered at the overflow of the river were destroyed.
- Levy County, Fla.*—Badly damaged by the storms of August. When ready for gathering it was broken down and covered with water, and a great deal of it rotted.
- Greene County, Ala.*—Late corn destroyed by drought.
- Wilcox County, Ala.*—Very light and inferior.
- Dallas County, Ala.*—Not over three-fifths of a crop, and quality inferior.
- Macon County, Ala.*—Almost an entire failure.
- Chambers County, Ala.*—Early corn good; late cut off by drought in August.
- Sunter County, Ala.*—Scarcely any corn. Quality poor.
- Clarke County, Ala.*—Early planted corn on the uplands, over an average crop. The river and creek lands, owing to overflow, were planted late, and are an entire failure.
- Hancock County, Miss.*—Crop reduced by drought at one time and excessive rains at another.
- Jefferson County, Miss.*—Almost a total failure.
- Wilkinson County, Miss.*—Heavily damaged by drought.
- Marshall County, Miss.*—Injured by drought when in the milk state. When the rains came it was heavy, with a brisk wind, which blew the stalks down, and much of the corn was destroyed.
- Rapides Parish, La.*—Not over five per cent. of a crop.
- Franklin Parish, La.*—But little more than half a crop.
- Milam County, Texas.*—Much better than anticipated two months ago.
- Hardin County, Texas.*—Crop gathered—abundant and of good quality.
- Smith County, Texas.*—The increased acreage brings the aggregate production up to that of last year.
- Red River County, Texas.*—Below an average; but sufficient for home use and to spare

Upshur County, Texas.—The drought, followed by the extreme wet weather, cut the crop short.

McLellan County, Texas.—Half a crop; now worth \$1 25 per bushel.

De Witt County, Texas.—Cut short by drought, though many farmers have harvested better crops than usual.

Williamson County, Texas.—Shortened by a four months' drought. Selling at \$1 per bushel. Last year, same date, 50 cents.

Washington County, Ark.—Probably an average crop; but the yield will be less than anticipated. Wet weather in the spring, poor cultivation while young, drought after middle of July, so that the crop did not mature well.

Columbia County, Ark.—Crop greater than last year.

Drew County, Ark.—Notwithstanding the large area planted, the crop will not more than suffice for home consumption.

Johnson County, Ark.—Yield reduced by drought. Ears small, but sound. Housed in good condition.

Fayette County, Tenn.—Larger acreage and better yield per acre than last year.

Doddridge County, W. Va.—The dry weather of the last month has been very favorable to the corn crop.

Taylor County, W. Va.—Late corn crop considerably injured by the heavy frosts in September.

Brooke County, W. Va.—Slightly damaged by the extreme drought.

Lincoln County, Ky.—Corn does not exceed half a crop, owing to drought from July 1 to September 13; late planted of no account.

Graves County, Ky.—Late corn was considerably injured by the heavy frost September 23.

Breckinridge County, Ky.—Injured 20 per cent. by dry weather in August.

Henderson County, Ky.—Corn much improved by rains the last of August.

Gentry County, Mo.—Crop well matured; sufficiently dry to harvest.

Carroll County, Mo.—Corn crop has been considerably injured by the chinch-bug and drought during August and September.

Audrain County, Mo.—Corn injured by chinch-bug more than for many years.

Perry County, Mo.—Drought for six weeks and the chinch-bug have nearly destroyed the corn crop on old lands; chinch-bugs never so numerous.

Callaway County, Mo.—Pretty good yield, but some of it light and chaffy.

Moniteau County, Mo.—Early corn crop large; late corn almost a failure.

Clay County, Mo.—Corn crop splendid; price advancing.

Pemiscot County, Mo.—Crop considerably diminished by drought in August and September.

Lee County, Ill.—Badly damaged by drought on sandy soil; on moist land above an average crop.

De Witt County, Ill.—Corn crop about an average; greatly reduced by dry weather.

Perry County, Ill.—Corn crop very much injured by drought.

Lawrence County, Ill.—Corn on the prairies almost entirely destroyed by the chinch-bug.

Wabash County, Ill.—Corn averages about three-fourths of a crop; quality good.

Pike County, Ill.—Corn on moist lands never better; on dry not more than half a crop, owing to drought.

Jersey County, Ill.—Injured by dry weather and chinch-bug.

Ogle County, Ill.—Crop ready for harvesting several weeks earlier than usual.

De Kalb County, Ill.—Dry weather has injured the corn considerably; the quality is excellent.

Boone County, Ill.—Corn crop diminished by severe drought in August and September; quality good.

Livingston County, Ill.—There will be a large crop of corn notwithstanding injury by drought.

Carroll County, Ill.—Ripened unusually early, and is in good condition to harvest.

Macoupin County, Ill.—Owing to light rains in early-summer corn has done well; late crops injured by drought.

Hancock County, Ill.—Considerably injured by dry weather and chinch-bug.

Fayette County, Ill.—Crop considerably less than last year, owing to injury by chinch-bug and drought.

St. Clair County, Ill.—Corn in northern part of county good; southern and eastern very poor.

Pulaski County, Ind.—Corn crop has been diminished 15 to 25 per cent. by drought.

Madison County, Ind.—Crop light, but safe from injury by frost.

Noble County, Ind.—Dry weather has considerably injured the corn crop.

Decatur County, Ind.—Corn is good, and out of danger from frost.

Ohio County, Ind.—Corn is fully an average crop; all ripe.

Clark County, Ind.—Corn is not maturing well.

Dubois County, Ind.—Much above an average, and well matured.

- Floyd County, Ind.*—Perfectly matured, and much of it harvested.
Union County, Ind.—Best crop of corn for four years.
St. Joseph County, Ind.—Not more than three-fourths of a crop, owing to excessive dry weather.
Franklin County, Ind.—Corn ripening in excellent condition; not so heavy in kernel as last year.
Fayette County, Ind.—Corn is ripening very fast; will soon be ready to harvest.
Loraine County, Ohio.—Late-planted corn injured by severe frost September 20.
Lawrence County, Ohio.—Crop the best known for many years.
Geauga County, Ohio.—No better crop of corn ever seen in the county.
Athens County, Ohio.—The quantity of corn is much reduced by long-continued drought.
Crawford County, Ohio.—The crop of corn is unusually large and fine.
Hamilton County, Ohio.—Owing to dry weather in the spring, corn on bottom and sandy soils is not so good as in other localities.
Ross County, Ohio.—In fine condition for harvesting.
Defiance County, Ohio.—Late corn was entirely killed by the heavy frosts the 21st and 22d of September.
Union County, Ohio.—Corn all ripe and in good condition.
Adams County, Ohio.—Drought has injured the corn crop considerably.
Mason County, Mich.—Late corn injured by early frost.
Muskegon County, Mich.—Continued drought has diminished the corn crop materially.
Emmet County, Mich.—Half a crop, with quality so inferior as to make it equal to about one-fourth of that of last year.
La Fayette County, Wis.—Heaviest crop of corn ever raised in the county.
Fillmore County, Minn.—Corn is being harvested in good order.
Steele County, Minn.—Best crop we have ever had, both in product and quality.
Cass County, Iowa.—Corn crop probably the best ever raised in the county.
Marshall County, Iowa.—Corn well ripened and in good condition.
Clinton County, Iowa.—Corn crop best for five years; perfectly ripe.
Tama County, Iowa.—Late corn injured by dry weather during the last two months.
Mahaska County, Iowa.—Corn all ripe and in good condition to harvest; a month earlier than usual.
Washington County, Iowa.—Corn crop the best known for twenty years.
Muscatine County, Iowa.—A very great yield of corn; all wanting more crib-room.
Webster County, Iowa.—Best crop of corn ever raised in this county; average yield, about fifty bushels per acre.
Keokuk County, Iowa.—Corn crop truly wonderful; nothing before to be compared with it.
Dallas County, Iowa.—Corn has ripened finely without injury from frost.
Monona County, Iowa.—Corn crop exceeds any before raised in this county.
Harrison County, Iowa.—Corn fully matured; crop heavy.
Jackson County, Kans.—Corn very good; selling at 25 cents per bushel.
Riley County, Kans.—The crop of corn is large; rain destroyed the chinch-bugs.
Douglas County, Kans.—Corn good; suffered some injury from chinch-bug.
Jefferson County, Kans.—Corn nearly fit to harvest; crop bountiful.
Norris County, Kans.—Corn crop is unsurpassed.
Crawford County, Kans.—Most corn in vicinity of wheat injured by chinch-bug.
Wyandotte County, Kans.—Yield of corn large; crop is being harvested.
Doniphan County, Kans.—Corn crop the largest ever raised in the county.
Osage County, Kans.—Many fields badly damaged by chinch-bug.
Merrick County, Nebr.—Chinch-bug injured corn crop considerably.
Cass County, Nebr.—Corn is drying up early; injured by chinch-bug.
Douglas County, Nebr.—Best corn crop ever raised in this section of the country.
Kearney County, Nebr.—Corn is much better than last year, both in quantity and quality.
Saunders County, Nebr.—Acreage increased 150 per cent.; condition 50 per cent. above average.
Curry County, Oreg.—Corn has grown well notwithstanding the severe drought.

WHEAT.

The product of wheat, as calculated from county estimates of our correspondents, appears to be about 7 per cent. less than last year. The percentages of last years' crop in the several States are as follows: Maine, 87; New Hampshire, 106; Vermont, 94; Massachusetts, 104; Connecticut, 100; New York, 104; New Jersey, 125; Pennsylvania, 123; Delaware, 100; Maryland, 120; Virginia, 85; North Carolina, 65; South Carolina,

60; Georgia, 65; Alabama, 71; Mississippi, 84; Texas, 90; Arkansas, 85; Tennessee, 60; West Virginia, 103; Kentucky, 75; Missouri, 102; Illinois, 93; Indiana, 90; Ohio, 99; Michigan, 110; Wisconsin, 90; Minnesota, 75; Iowa, 90; Kansas, 113; Nebraska, 96; California, 90; Oregon, 101. The quality is generally superior. It is placed above an average in all the Western States except Kentucky, Iowa, and Nebraska.

Drought and grasshoppers reduced the yield materially in portions of Maine and Vermont. In Albany County, New York, there was loss of early-sown wheat from weevil, but in several of the best wheat-growing counties of that State the best result for several years was obtained. A fine crop in quantity and quality is reported in Pennsylvania; in some places where the straw was short the season was favorable for heading well. The wheat of the Southern States was considerably injured by rust. The Tappahannock is still the most reliable variety in that section. One correspondent in Tennessee (Sullivan County) reports that notwithstanding the general failure of wheat, he was able to secure, upon poor soil, 24½ bushels per acre, by the application of twenty two-horse loads of sheep manure per acre. Wheat was greatly injured in Kentucky by the frost of April 23, and the severe drought which followed reduced still further both yield and quality. The losses in the West were mainly from insects, slightly from winter-killing, and from April frosts, and to some extent due to drought which retarded growth and tillering. Spring-wheat was in many places almost destroyed by the chinch-bug.

The yield in Minnesota is greatly reduced. Several counties report an average of only eight bushels per acre. Disappointment is experienced in many places at the result in thrashing. The depreciation in Iowa is estimated at 10 per cent. The chinch-bug was especially injurious in the Northwest. The product is large in Kansas, notwithstanding the destruction of spring-wheat by this pest. In Doniphan County, fall-wheat is unusually heavy and of fine quality, averaging sixty-three pounds to the bushel and twenty five bushels per acre, but spring-wheat is so destroyed by the chinch-bug as to be scarcely worth harvesting. In Nebraska there will be a large increase of fall sowing, as the result of experience of the past. The crop of Oregon is a good one; one county (Polk) reports a product of half a million bushels.

OATS.

The product of oats will be about as large as the crop of last year. The States producing more than in 1870 are New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, Mississippi, Arkansas, Indiana, Ohio, Wisconsin, Iowa and Kansas. The quality in the Eastern, Middle, and Western States is good. Drought and grasshoppers cut short the crop in Maine. The product is large in New York, though not uniform, some counties reporting less than last year, others an "enormous yield." The harvest was shortened in New Jersey by dry weather early in the season, and wet weather prior to harvesting; and also in sections of Pennsylvania, as in Berks, where the weight is reported at 24 to 30 pounds to the bushel. Rust prevailed generally in the Southern States, and drought wrought local injury. In Kentucky, oats is the best grain crop. In Illinois the product is an average one. In Decatur, as in many other counties, the crop is reported good, notwithstanding the drought, and in Livingston, as elsewhere, "the yield is 40 to 50 bushels per acre where not injured by the chinch-bug." In Lafayette County, Wisconsin, is reported "the finest crop of oats ever raised;"

in some cases 95 bushels per acre. In Milwaukee County, the White Schonen (distributed by the Department of Agriculture) "averages 65 bushels per acre, the Norway 38½ bushels." In Muscatine County, Iowa, the yield is 40 to 75 bushels per acre. The losses from the chinch-bug were general in Missouri, yet a nearly average crop is reported; and Kansas has bid defiance to chinch-bugs, and claims an increase of 10 per cent. on last year.

BARLEY.

The product is greater than last year in New Hampshire, Vermont, New York, Ohio, Indiana, Wisconsin, Iowa, Kansas, and Oregon. The quality is above an average in all of the New England States except Maine, and in New York, Tennessee, West Virginia, Ohio, Michigan, Wisconsin, Iowa, Kansas, and Oregon. As a whole, the quality may be said to be fully medium, and the quantity very nearly an average.

BUCKWHEAT.

This crop is comparatively a poor one, the average condition being low in nearly all the States. In Maine the growth was large, and blossoms abundant, but they did not fill. In all the States north of Virginia and Kentucky it was injured by the frosts of September 21 and 22, and in Southern Indiana and Ohio by the frosts of the 29th and 30th September. In Des Moines County, Iowa, it was "all killed by frost September 21." In Dakota killing frosts came as early as the 12th of September. Drought has also reduced the yield.

POTATOES.

The potato crop is somewhat above an average in the New England and Middle States, Vermont and Delaware constituting the only exceptions; below an average in nearly all the States of the South; a poor yield in Kentucky, Missouri, Illinois, and Indiana, and a fine product in the Northwestern and Trans-Missouri States. Taken together, the product of the country must fall below an average. A few notes of correspondence are appended:

Ulster County, N. Y.—Vines killed by frost September 21.

St. Lawrence County, N. Y.—Enormous yield.

Kings County, N. Y.—An unusually good crop. The Peerless has been grown in small quantities and yields rather better than the Rose.

Albany County, N. Y.—Not more than half a crop, and rotting badly at that.

Kings County, N. Y.—Yield larger than usual. Quality fine. Hardly any rot.

Gloucester County, N. J.—Early varieties, large crop; late ones, medium. Sweet-potatoes, light crop.

Warren County, N. J.—Good yield, but considerable complaint of rot among those taken out of the ground after the heavy rain of the 20th September.

Burlington County, N. J.—Many report the Peach Blow as not yielding so well as earlier varieties.

Indiana County, Pa.—At least three-fifths below last year, owing to drought and bugs.

Elk County, Pa.—Very good in quantity and quality; Early Rose the favorite.

Tioga County, Pa.—Harvested earlier and in better condition than usual.

Kent County, Del.—Sweet-potatoes injured by drought and frost.

Howard County, Md.—Vines injured by frost of September 21 and 22.

Orange County, Va.—Root crops generally poor, from dry season.

Surry County, Va.—Above average crop; quality excellent. Irish potatoes very scarce; rotted badly.

Beaufort County, N. C.—The early crop, planted in February or first of March, was very fine. I raised at the rate of 400 bushels to the acre of the Early Rose; many of the tubers weighed one pound each, and some of the largest 1½ pounds each. The late crop, planted in June and July, is an entire failure.

- Craven County, N. C.*—Sweet-potatoes have suffered from drought and cold.
- Union County, S. C.*—Sweet-potatoes small, owing to drought.
- Suwanee County, Fla.*—Whole fields destroyed by overflow.
- Jackson County, Fla.*—The sweet-potato crop has failed comparatively in some places, while in other places it is abundant.
- Montgomery County, Ala.*—Sweet-potatoes greatly benefited by favorable weather or September. Fall turnips promising.
- Lauderdale County, Miss.*—Very short crop of potatoes.
- Rickland Parish, La.*—Sweet-potatoes injured by drought.
- Washington Parish, La.*—Sweet-potatoes promise an abundant crop.
- Rapides Parish, La.*—Large patches of sweet-potatoes planted, but they promise poorly. Quality inferior.
- Hardin County, Texas.*—Sweet-potatoes good, with prospect of a heavy crop.
- Upshur County, Texas.*—Much injured by dry weather.
- Austin County, Texas.*—Sweet-potatoes almost an entire failure.
- Sebastian County, Ark.*—Irish potatoes full crop; sweet-potatoes not more than two-thirds of a crop and of inferior quality.
- Humphreys County, Tenn.*—Crop very short, particularly the late crop.
- Tyler County, W. Va.*—Crop remarkably good; Early Rose largely cultivated and very prolific.
- Webster County, Mo.*—Potato crop not so good as anticipated; latter part of the season very dry.
- St. Louis County, Mo.*—Early potatoes an average crop; late ones injured by drought.
- Greene County, Mo.*—Late potatoes nearly a failure, in consequence of dry weather.
- Cass County, Mo.*—Early potatoes and Neshannocks good yield; late ones and Peach Blows not so good.
- Callaway County, Mo.*—Cut short by drought; sweet-potatoes very fine and cheap.
- Lee County, Ill.*—Potatoes totally destroyed in some localities by the Colorado potato-beetle; in others, an average crop; quality good.
- De Witt County, Ill.*—Early potatoes for winter, fine; late-planted an entire failure, owing to severe drought.
- Perry County, Ill.*—Severe drought has very much diminished the potato crop.
- Pope County, Ill.*—Much injured by the Colorado potato-beetle and drought.
- Putnam County, Ill.*—Potatoes less than half a crop, on account of the Colorado potato-beetle and drought.
- Champaign County, Ill.*—Scarcely any potatoes will be raised.
- De Kalb County, Ill.*—Potatoes are a failure, owing to the ravages of the Colorado potato-beetle; not half enough for home consumption.
- Boone County, Ill.*—Potatoes not enough to mention; destroyed by the bugs. Few sweet-potatoes raised; quality excellent.
- Massac County, Ill.*—Potatoes will not be more than half a crop.
- Fayette County, Ill.*—Potatoes very much injured by the great drought.
- La Grange County, Ind.*—Potato crop considerably injured since our last report by drought. Sweet-potatoes are cultivated by some farmers this year; are doing well.
- Madison County, Ind.*—Late potatoes considerably injured by frosts during the last week of September; also, sweet-potatoes.
- Decatur County, Ind.*—Potatoes good, but saved from the Colorado potato-beetle only by the unremitted efforts of the farmers.
- Clark County, Ind.*—Late potatoes slightly injured by frosts September 30.
- Dubois County, Ind.*—Potatoes much injured by Colorado potato-beetle.
- Switzerland County, Ind.*—Late potatoes about half an average crop, owing to extreme dry weather and recent frosts.
- Adams County, Ind.*—Crop never better.
- Loraine County, Ohio.*—Late-planted potatoes injured by heavy frost September 20.
- Washington County, Ohio.*—The severe drought during September has diminished the crop of late potatoes and injured their quality.
- Geauga County, Ohio.*—The potato crop was never better.
- Athens County, Ohio.*—Potatoes have been much injured by severe drought; late ones by frost.
- Crawford County, Ohio.*—Potato crop is unusually large and fine.
- Union County, Ohio.*—Late potatoes killed by frost September 19.
- Mason County, Mich.*—Late potatoes injured by early frosts.
- Van Buren County, Mich.*—Potatoes will not average more than half a crop; injured by potato-beetle and drought.
- Lapeer County, Mich.*—Potatoes not more than half a crop, occasioned by drought.
- Muskegon County, Mich.*—Potatoes have suffered from the ravages of grasshoppers.
- Grant County, Wis.*—Potato crop fair; injured considerably by Colorado potato-beetle.
- Brown County, Wis.*—Potatoes better than for the last three years.
- Buffalo County, Wis.*—The potato crop the best for several years; not much damaged by the potato-beetle.

Ozaukee County, Wis.—Potatoes uninjured by potato-beetle this year; all the beetles have disappeared.

Faribault County, Minn.—The potato crop good this year; Colorado potato-beetle, so destructive for the past five years, has disappeared.

Fillmore County, Minn.—Potato crop mostly haryested.

Marshall County, Iowa.—Potatoes well ripened and of good quality.

Tama County, Iowa.—Late potatoes injured by the dry weather during the last two months.

Harrison County, Iowa.—A large crop; digging commenced. Sweet-potatoes cultivated extensively; have succeeded well; present price \$1 per bushel.

Douglas County, Kans.—Crop of sweet-potatoes large; yield heavy. Irish potatoes injured by drought; crop less than last year.

Labette County, Kans.—The potato crop has been diminished by the drought.

Norris County, Kans.—A better potato crop has never been known.

Sedgwick County, Kans.—Potato crop extra good.

Kearney County, Nebr.—The potato crop is larger and of better quality than last year.

Humboldt County, Cal.—Fifteen per cent. better than last year in quantity and quality.

Grant County, Oreg.—Irish potatoes considerably injured by frost 7th and 8th of September.

Marion County, Oreg.—Potatoes are good; selling at 75 cents per bushel.

Morgan County, Utah.—Only half a crop, owing to June frost and excessive drought.

Summit County, Utah.—Small potato crop; injured by frost and excessive drought.

COTTON.

The cotton returns of October are no more favorable than those of the preceding month. In no State is the average of September fully sustained. The general average of condition in the first week of the present month is 76 per cent. against 80 per cent. in September. In some sections in the Mississippi Valley and in Texas improved prospects are reported, while the preponderance of testimony in the southwest, as well as on the Atlantic coast, favors a further reduction of the expected yield. The percentage of the condition of the several States is as follows: North Carolina, 80; South Carolina, 75; Georgia, 72; Florida, 73; Alabama, 75; Mississippi, 76; Louisiana, 73; Texas, 72; Arkansas, 82; Tennessee, 94.

The injuries reported are from rust, shedding of bolls prematurely, sufficiently low temperature to check the development of bolls in more northern latitudes, floods and inundations in Florida and Georgia; sprouting or rotting of bolls from rains, drought in some sections of Georgia, and the boll and army worms in portions of Mississippi and more western States. It does not appear that the losses from insects are general or very serious, with a few isolated exceptions. Drought should be credited with a larger proportion of the depreciation than any other assigned cause, notwithstanding the fact that cotton endures lack of moisture better than any other crop.

The present indications do not point to a crop of more than three millions of bales, and if the remaining season should be unfavorable for the development and gathering of the fiber, a smaller result must be accepted.

Sampson County, N. C.—Some say half a crop, others two-thirds, while others say three-fourths. My own opinion is that there will be fully three-fourths of an average crop, as many now say the crops pick out better than they expected.

Bladen County, N. C.—The early cold fall has stopped all growth; the bolls are nearly all open; much immature; crop one-third short of a full average yield.

Chowan County, N. C.—Reduced at least one-third by rust, which is general.

Camden County, N. C.—The drought and rust have changed the condition within a few days. The yield will be below average, but the quality will be fair.

Mecklenburg County, N. C.—About half gathered. No late bolls to mature. Drought. destroyed the bright prospect up to July 1.

Gaston County, N. C.—Nearly all picked; short crop.

Anson County, N. C.—All crops have failed. Drought from 27th June to 22d September. Cotton crop will not exceed one-third of an average yield.

Beaufort County, N. C.—Picking commenced two weeks earlier than usual, and is now fully half done. The crop will be at least 20 per cent. less than last year.

Craven County, N. C.—Suffered greatly within the past forty days: first, from rust, causing premature opening; then from frost. Cotton has never before been so forward in opening in this county. The staple is short, light, and of inferior quality.

Onslow County, N. C.—I fear I have overestimated the cotton crop—(estimate 80 per cent.)

Edgecombe County, N. C.—Yielding a little better than was anticipated five weeks ago. The season could not have been better for picking. More than half the crop now in the gin-house or baled.

Hertford County, N. C.—Opening rapidly and yield of lint very good. Scarcity of labor, however, and farmers are fearful they will be unable to gather the crop before it falls from the bolls.

York County, S. C.—No improvement. Crop somewhat damaged by rain since opening.

Clarendon County, S. C.—Decrease in acreage 30 per cent.; in yield, 40 per cent. Three-fourths of the crop now open. Continuous rains have retarded the gathering.

Lexington County, S. C.—Falling short of anticipations, and many planters say that only half a crop can be made.

Marlborough County, S. C.—Fields are now as clear of cotton as is usual December 1. The entire crop has been made between 10th June and 28th July. Cannot exceed three-fifths of a crop.

Spartanburgh, S. C.—For the first time within my knowledge the summer drought injured cotton more than corn. There are now many squares on the top, but too late to mature.

Fairfield County, S. C.—Not more than three-fifths of a crop. No late fruit.

Newberry County, S. C.—Not improved since last report. Yield reduced nearly one-half by drought.

Union County, S. C.—The best crops in the county will not be more than half an average. The sandy and poorer parts of the county will give a very small yield. Picking will be finished by November 15.

Schley County, Ga.—Wet weather continues. Open cotton is sprouting in the bolls; bolls not open are rotting. With plenty of sunshine there cannot be over half a crop.

Lincoln County, Ga.—Crop of county 33 per cent. below that of 1870. Excessive rain the past month has seriously damaged the bolls, causing those full-grown to rot.

Walton County, Ga.—Likely to turn out worse than was anticipated six weeks ago. Recent continuous rains have, in many instances, seriously injured the crop. Many planters represent the most promising portions of their crop as likely to prove least productive, in consequence of rot in all cotton of rank growth, induced by excessive wet.

Butts County, Ga.—Materially damaged by drought and by storms.

Clayton County, Ga.—Injured in quality and quantity by excessive rain in spring and summer, and by severe storm in August.

Marion County, Ga.—Deteriorated considerably since last report. I have not seen so poor a crop in forty years' experience.

Clay County, Ga.—Very short crop. Seasons have been unfavorable, and the caterpillars have eaten the leaves and destroyed many of the young bolls by eating the husks.

Brooks County, Ga.—Poorest crop since 1860. By October 1st last year 1,000 bales had been shipped from Quitman depot. This year not 100 have been received.

Spalding County, Ga.—Yield one-fourth short of last year.

Houston County, Ga.—One of the most unfavorable seasons in twenty-five years.

Pike County, Ga.—Recent rains have greatly reduced the prospect. Sprouting in the boll.

Crawford County, Ga.—Floods have destroyed nearly all the cotton upon the river and large creek bottoms. No fruiting since 20th of August, which equals a loss of one-third.

Coweta County, Ga.—Three weeks of present favorable weather will open most all the cotton. Not over seven-tenths of a crop. Some rich patches will not make half of last year's yield. Late planting seems to be best, except when cut by frost.

Johnson County, Ga.—Cotton has rust, from which there is no recovery.

Liberty County, Ga.—Crop in this section will not average more than one-third.

Pulaski County, Ga.—Crop reduced one-third by unfavorable seasons.

Wilcox County, Ga.—Not maturing properly.

Randolph County, Ga.—Not over half a crop. Quality an average.

Putnam County, Ga.—Season very unfavorable.

Madison County, Ga.—Crop ten per cent. lower than on 1st of September.

Liberty County, Fla.—Crop almost ruined by excessive rains.

Leon County, Fla.—Continued rains have beaten out much cotton, prevented it from opening well, rotted many bolls, and stained and sanded it badly.

Suwanee County, Fla.—The Suwanee River is now six feet higher than ever known before, destroying whole fields of cotton.

Jackson County, Fla.—The top crop will fail on a majority of farms. Not more than three-fifths of a crop.

Clay County, Fla.—Injured by wet weather.

Very County, Fla.—Short crop. Seriously damaged by storms of August. The best fields were ruined, and the poor fields are now the most promising.

Greene County, Ala.—Cut short by drought.

Crenshaw County, Ala.—Worms and rust have seriously injured cotton since last report.

Calhoun County, Ala.—Late growth entirely too late to mature.

Montgomery County, Ala.—Cotton being past redemption, remains in *statu quo*. Favorable weather has greatly benefited other crops.

Autauga County, Ala.—The crop will be picked out much sooner than usual; owing to the dry summer little cotton has been made since August 1.

Shelby County, Ala.—Not more than half a crop, but the staple is much better than last year.

Chambers County, Ala.—Farmers are unwilling to put the crop at more than one-half, but I have been over the county, and think it will reach three-fifths of an average.

Macon County, Ala.—The recent rains have caused the forms to fall, and the stalk to throw off much of its fruit. Not over two-fifths of a crop.

Marengo County, Ala.—Not over half the yield of last year.

Hale County, Ala.—Very short crop. I shall make about 350 bales on the land that made 600 last year. I think I am fully up to the average.

Perry County, Ala.—Cannot exceed half of last year's crop.

Lawrence County, Ala.—I think the crop will not fall short more than 25 per cent., though the impression is that the reduction will reach 50 per cent.; the late rains have been very beneficial to the crop.

Dallas County, Ala.—Two-thirds of an average crop. Quality inferior.

Clarke County, Ala.—In many neighborhoods nearly all gathered. Yield on fertilized lands 300 to 500 pounds seed-cotton per acre.

Sumter County, Ala.—Short crop; will all be gathered by the 15th of November.

Newton County, Miss.—Not more than half a crop.

Tippah County, Miss.—Since last report the second and third crops of cotton have proved entire failures, leaving only the first setting of bolls to be picked. The falling off is equally heavy throughout North Mississippi. The crop in this county will not exceed one-half the estimate of forty days since.

Leake County, Miss.—Season unusually dry. Crop will fall short of that of last year one-half.

Hancock County, Miss.—Cotton of the sea-island variety, fully equal to the best Georgia sea-island, is turning out well. The salt air of the ocean seems to prevent the visits of worms.

Rankin County, Miss.—The general opinion is that cotton will fall short one-half.

Grenada County, Miss.—In no event can the crop exceed three-fourths of that of last season.

Winston County, Miss.—Injured by drought; persons in different parts of the county say they will not make over half a crop; others say three-fourths, and a few report an average product.

Lauderdale County, Miss.—Drought destroyed the top crop; many planters have already gathered two-thirds of the crop.

Coahoma County, Miss.—The crop cannot exceed three-fourths of that of last year.

De Soto County, Miss.—Weather very fine; cotton nearly all open; crop 15 per cent. short. My assistants estimate the crop lower than I have put it.

Jefferson County, Miss.—Crop failing daily; worms destroying what is left.

Yalabusha County, Miss.—Drought has caused cotton to shed and to fail rapidly. Planters have lowered their estimates considerably.

Attala County, Miss.—Three weeks of dry weather have seriously injured the crop.

Wilkinson County, Miss.—Many fields have not a leaf; destroyed by the caterpillar. The boll-worm has also done very serious damage, and the shed has been unprecedented.

Marshall County, Miss.—The shortest crop I have ever seen in the county; have been here thirty-five years.

Washington County, Miss.—No rain since the last of July; consequently cotton has shed badly, and there is no top crop. The boll-worms were bad. Many put the crop at half an average yield.

Issaquena County, Miss.—The army-worm and drought have reduced the crop to three-fifths of an average.

Ouachita Parish, La.—The crop is poor, but it has improved since the appearance of the worms, which are few in numbers and not destructive.

Madison Parish, La.—Few or no worms. Crop has improved wonderfully. Within five per cent. of that of last year.

Aroyelles Parish, La.—The worms have entirely eaten the cotton.

West Feliciana Parish, La.—Unfavorable weather has checked the growth, causing the forms to shed and the leaves to turn yellow. The weed is large, but there is less fruit than there ought to be. The caterpillar has done considerable damage. The boll-worm is also complained of. Picking rather small up to date. Late cotton just beginning to open.

Washington Parish, La.—At least one-fourth of the crop of the parish cut off by worms.

Caddo Parish, La.—Short, from drought. Worms now seriously damaging the crop.

Winn Parish, La.—Three-fourths of an average crop. The plants have shed a great many young bolls, caused by drought.

Iberia Parish, La.—Cut short 45 per cent. by wet weather and the worms.

St. Landry Parish, La.—The army-worm destroyed cotton generally in this parish by the 10th of September.

Richland Parish, La.—Cotton-worm at work. In some cases the leaves have been eaten; in others but little damage has been done. Rust and the boll-worm have also done much damage.

Rapides Parish, La.—Not more than one-fifth of a crop.

Franklin Parish, La.—Good judges estimate half a crop.

Matagorda County, Texas.—With favorable weather half a crop will be gathered.

Grimes County, Texas.—Fully 35 per cent. short, and should wet weather set in it will be further reduced. Staple short.

McClellan County, Texas.—Last year this county made 7,500 bales. This year the product cannot exceed 2,000.

DeWitt County, Texas.—The drought from May to September cut short both cotton and corn, though some persons have harvested better crops than usual. Some have already realized \$40, coin, per acre for their cotton, with good prospect for a late top crop.

Austin County, Texas.—Weather favorable to picking. About half an average crop, three-fourths of which has been gathered.

Milam County, Texas.—Much better than anticipated two months ago. Farmers in good spirits.

Hardin County, Texas.—Less acreage than last year. Fair prospect.

Rusk County, Texas.—The rain of the last of August caused a new growth, throwing off the few remaining squares, but making a luxuriant top crop, which might mature with a late fall as last year, but the real army worm (*Anomis xyliua*) has appeared and will destroy it, even if the frost should spare it.

Upshur County, Texas.—Thirty per cent. below last year.

Smith County, Texas.—No changes since last report. Rains came too late to add another matured boll.

Red River County, Texas.—Full average crop; season favorable for picking.

Henderson County, Texas.—Crop will be all gathered by November.

Lamar County, Texas.—Not over one-third of a crop. Some fields will make half a crop; others almost entire failures.

Cherokee County, Texas.—Some fields on bottom lands will make 1,600 to 2,000 pounds seed cotton to the acre. Upland crops are cut off 50 to 75 per cent., and staple short.

Bexar County, Texas.—Since our fine rains of August, cotton is again in full bloom. A late fall and no worms must give us a half a crop. A few worms in some localities.

Williamson County, Texas.—Shortened by a four months' drought.

Johnson County, Arkansas.—On dry uplands 60 per cent. of an average; sandy river and creek lands 75 per cent.; stiff, waxy river and creek bottoms, 10 per cent. above average. General average about 80 per cent.

Pulaski County, Ark.—Three-fourths of a crop.

Drew County, Ark.—Seriously damaged by the unfavorable seasons, and also by the caterpillar in portions of the county.

Jackson County, Ark.—No rain for five weeks. Rust and the boll-worm are injuring cotton.

Monroe County, Ark.—Materially injured by drought. Late bolls and squares shedding. Acreage 15 per cent. less than last year.

Sebastian County, Ark.—Beautifully white, but not more than half a crop, owing to the drought.

Cross County, Ark.—Drought has reduced the crop below the anticipations of early summer; still I think an average crop will be gathered.

Prairie County, Ark.—Worst year for cotton since the war. Frost on 25th, 28th, and 29th September hard enough to kill cotton. Cotton is nearly all open, and the crop will be out by the middle of November.

Independence County, Ark.—Crop lighter than anticipated in August. The cool, dry weather has caused the plant to shed nearly all the top squares, so that one-third of the plant is almost without bolls.

Columbia County, Ark.—Much shorter than last year.

Giles County, Tenn.—Opened early, and promises to be a full average crop, in proportion to acreage.

Decatur County, Tenn.—Reduced at least 20 per cent. by drought and rust.

Fayette County, Tenn.—One-tenth less acreage, and one-third less yield per acre, than last year, is the general opinion. I have allowed for "croaking," and put it at three-fourths of a crop. In West Tennessee the crop will average less than three bales to four of last year. Old and worn-out lands will not average one bale to two of last year. Freshly cleared land is not so bad.

Hardeman County, Tenn.—In July, and as late as August, cotton promised an unusual yield; but a drought in the latter part of August and the early part of September, accompanied by three or four cold nights, has materially damaged the crop, leaving the yield per acre about as last year, with decrease in acreage of about 10 per cent.

Weakley County, Tenn.—Not more than three-fifths of last year's crop.

Lauderdale County, Tenn.—Turning out cotton better than was anticipated a month ago; will probably make two-thirds of a crop. Lint good.

SUGAR-CANE.

Jackson County, Fla.—The cane is better than last year, and the season is propitious for its maturing well.

Suwanee County, Fla.—Whole fields destroyed by overflow.

Levy County, Fla.—Badly injured by being blown down, and by falling trees. It is sprouting at every eye, which injures it for sugar and ruins it for seed; with a long fall season, it may make up much of the loss.

Putnam County, Fla.—Sugar-cane has so far recovered from the effects of the cyclone, as to promise a fair average crop.

Ascension Parish, La.—Cane is ripening very fast, but it is short in length, compared with last year.

Iberia Parish, La.—Cane ripening rapidly, and grinding will commence the middle of the month.

Terrebonne Parish, La.—The storm of the 2d and 3d September improved the cane, by loosening the roots, and laying it open to the sun. The product of sugar will be far in excess of last year.

SORGHUM.

Doddridge County, W. Va.—Sorghum very much injured by rust.

Braxton County, W. Va.—The black bushy variety of sorghum has been diseased this year; other varieties have done well.

Butler County, Ky.—The black seed, tall sorghum is all destroyed by rust.

Lawrence County, Mo.—Sorghum crop is excellent, 75 per cent. above an average.

La Grange County, Ind.—Sorghum crop good; yield of sirup large and of good quality.

Floyd County, Ind.—Sorghum nearly ruined in some localities by "black blight."

Pike County, Ind.—The crop of sorghum is reduced one-half, but the quality is good.

Shelby County, Iowa.—Sorghum not ripened, all destroyed by heavy frost September 28th and 29th.

Marshall County, Iowa.—Sorghum well ripened and in good condition.

FATTENING STOCK.

The number of beeves reported is greater than usual in most of the States. Texas reports a reduction of 21 per cent. from last year; Kentucky, 2; Illinois, 2; Indiana, 2; and California, 5 per cent. The following extracts from correspondence are given:

Piscataquis County, Maine.—The number of fattening cattle is much in excess of last year, but owing to the short crop of hay, farmers are reducing their stock proportionately. The condition of stock is better than last year at this date, the feed being much better.

Hillsborough County, N. H.—Fifteen to twenty per cent. less of beef and pork than last year. Fall feed is good, and the prospect is that we shall have as much feed in our barns the 1st of November as last year.

Caledonia County, Vt.—No beef. What would have been beef with an ordinary season for feed, is not in good store order. No sale for cattle.

Franklin County, Mass.—Stock reduced in numbers. Hay worth \$25 per ton in barn. Probably as high now as it will be next spring. It is common for farmers to sell hay and buy corn.

New London County, Conn.—Owing to the short crop of hay, farmers are reducing their stock by fattening it for beef.

Hartford County, Conn.—Looking exceedingly well, but will be sent to the shambles early on account of short crop of hay.

Franklin County, N. Y.—No rain; no after-feed; cattle thin.

Ontario County, N. Y.—Stock plenty and cheap.

Erie County, N. Y.—The number will be small.

Albany County, N. Y.—In number about the same as last year. Condition good. Hogs plenty, prices low. Sheep scarce and prices good.

Warren County, N. J.—Very plenty and in good condition.

Butler County, Pa.—Young cattle are selling at 25 per cent. less than the same could have been sold for last spring. Scarcity of water is felt by cattle; in some parts of the county the springs are drying up.

Indiana County, Pa.—Cattle have ruled low this season, and farmers are not fattening so much stock as usual.

Beaver County, Pa.—Cattle and sheep in good stock order; cattle fever going down; sheep fever arising.

Warren County, Pa.—Not as fat as usual, owing to the dry season; mostly unsold; prices very low.

Culpeper County, Va.—Near the mountains cattle are very plentiful and in good condition; prices quite low.

Orange County, Va.—Stock generally in good condition.

Surry County, Va.—Good condition; more being slaughtered than last year.

Franklin County, N. C.—Above an average. There will be a considerable increase in pork.

Callaway County, Mo.—Cattle shrinking, owing to the drought. Grass all dried up and water scarce. Many farmers are hauling water two to seven miles, and drive stock to water.

Liberty County, Fla.—Above average.

Williamson County, Texas.—With an early and severe winter the loss of stock will be large, as grass is poorer than known in 20 years on the 1st of October.

Austin County, Texas.—Water scant, pasture poor, and it is feared that a large percentage of the cattle will be lost in consequence.

Humphreys County, Tenn.—Beef cattle not in as good condition as usual. Pasture short. Drought.

Meigs County, Ohio.—But few cattle, compared with last year, have been shipped, owing to the low prices.

El Paso County, Colo.—Cattle in a remarkably fine condition notwithstanding the drought; wild grasses are very nutritious.

Mendocino County, Cal.—Cattle are decreasing in numbers; sheep are taking their places gradually.

In portions of the South mast is abundant. The following extracts illustrate the importance attached to this spontaneous product:

Jackson County, N. C.—An extraordinary crop of acorns. Hogs all fat without corn.

Alamance County, N. C.—A fine mast, which will nearly winter the hogs.

Smith County, Texas.—Fine prospect for a heavy mast.

De Witt County, Texas.—Fine mast; but for a scarcity of hogs pork would be cheap. There will probably be enough for home consumption.

HAY AND PASTURES.

Lincoln County, Ky.—Grass is now growing well since the rain, September 13.

Boyle County, Ky.—Severe drought has dried up the grass very badly, and farmers are obliged to sell stock early and at low prices.

Mercer County, Ky.—Recent rains about the 10th of September have revived the parched pastures; they will afford good fall feed.

Pike County, Mo.—Pastures completely parched by severe drought; water scarcer than ever before.

Greene County, Mo.—Fall feed destroyed by drought; hay crop 50 per cent. better than last year; rains abundant in the early part of the season.

Maitland County, Mo.—Pasturage so dried that it would burn; no rain for three months.

Clay County, Mo.—Pastures and meadows dry enough to burn if fired; stock water scarce.

Lee County, Ill.—Pastures short and dry; water scarce.

Clinton County, Ill.—Pastures dried up; farmers feeding all their stock.

Perry County, Ill.—Meadows and pastures are entirely dried up; no heavy rain since March.

- Lawrence County, Ill.*—Pastures are entirely dried up; are compelled to feed stock to keep them in living condition.
- Jersey County, Ill.*—Meadows are dried up; want of feed and water for stock is severely felt.
- Sangamon County, Ill.*—Pastures very short, owing to continued drought.
- Winnebago County, Ill.*—Fall feed and all fall crops nearly a failure, owing to severe drought.
- Pulnam County, Ill.*—Pastures dried up; water on the prairies very scarce.
- Boone County, Ill.*—Pastures very short; cattle being fed on hay.
- Carroll County, Ill.*—Pasture feed failing; must soon be fed from barn.
- Williamson County, Ill.*—Pasturage dried up; cattle not fed becoming thinner every day.
- Iroquois County, Ill.*—Pastures very much shortened by severe drought; feeding stock will commence a month earlier than usual.
- Fayette County, Ill.*—Pastures suffering severely from protracted drought.
- Greene County, Ind.*—Pastures are dried up, and stock must soon be fed; hay very scarce.
- Wayne County, Ind.*—Pastures fine; cattle looking well.
- Wells County, Ind.*—Pastures drying up; weather very dry.
- Cass County, Ind.*—Our pastures are dried up; many find difficulty in procuring water for stock.
- Lawrence County, Ind.*—Fall pasturage an entire failure.
- Delaware County, Ohio.*—Pastures drying up badly; stock not doing well; farmers selling at low prices.
- Athens County, Ohio.*—Pastures are almost entirely dried up; many farmers are feeding their stock on hay and other fodder.
- Cranford County, Ohio.*—Pastures are becoming short, owing to dry weather.
- Logan County, Ohio.*—Fall pasturage is very fine.
- Vinton County, Ohio.*—Driest fall ever known here; pastures dried up; water for stock very scarce.
- Montgomery County, Ohio.*—Hay crop larger and of better quality than usual.
- Montcalm County, Mich.*—Pastures dried up; commenced feeding stock.
- Van Buren County, Mich.*—Hay light, owing to drought.
- Portage County, Wis.*—Great drought; grass as dry as hay.
- Outagamie County, Wis.*—Pastures are all dried up.
- La Fayette County, Wis.*—Pasturage very much dried up; cattle are being fed.
- St. Croix County, Wis.*—Fall pasturage has suffered severely from drought.
- Clinton County, Iowa.*—Pastures short; grass stopped growing; water scarce.
- Howard County, Iowa.*—Pastures drying up from severe drought.
- Mahaska County, Iowa.*—Drought has made pastures very short.
- Keokuk County, Iowa.*—Pastures very short, owing to drought; cattle rather thin.
- Meeker County, Kans.*—Large quantities of hay destroyed by prairie fire.
- Fillmore County, Kans.*—No fall feed, owing to great drought.
- Butler County, Kans.*—Large crop of the very best hay cut. A great number of Texas cattle will be wintered in this county.
- Douglas County, Kans.*—Haying on the prairie just closing; crop large and of the best quality.
- Jefferson County, Kans.*—Fall feed very good; cattle very fat.
- Sedgwick County, Kans.*—Much of the prairie grass land has been burned over by accidental fire.
- Davis County, Kans.*—Heavy crop of prairie hay; range good, but prairie fires consuming it.
- Umatilla County, Oreg.*—Much damage done the native grass-range by fire.
- Douglas County, Oreg.*—Feed short; stock will suffer unless there is rain soon.
- El Paso County, Colo.*—Season has been remarkably dry, but late rains have improved the pastures.

EXTRACTS FROM REGULAR CORRESPONDENCE.

TRIALS OF DEPARTMENT SEEDS.

Stanley County, N. C.—The Egyptian cotton seed received from the Department has had a fair trial. It fails to come up to the high promise of its early growth. The weed grew thriftily, forming a large high bush, full of yellow blossoms and a deeply divided foliage, which remained green when everything else around was withering from heat and drought. At this time, however, when other varieties have yielded nearly all their crop, the abundant bolls of the Egyptian cotton hang green on the stalk. Only a few bolls opened fully ripe amid a large proportion of faulty and decaying ones. Those that were fairly ripe yielded a long snow-white lint, finer than silk, out of which, being picked by hand, the women can spin a very slender thread without much previous preparation. The extreme lateness of maturity will be a serious objection to the introduction of this variety into this part of the country. We will give it another trial with earlier planting. The bolls, though numerous, are smaller than those of the other varieties, averaging but three partitions to the boll, and the contents of 100 bolls are one-fourth lighter.

Chowan County, N. C.—The Egyptian cotton will not suit our climate. It grows beautifully, but does not bear more than one-third as much as the Peeler cotton.

Randolph County, N. C.—The Egyptian cotton seed was planted on mulatto clay soil, about 1,200 feet above the level of the sea, a table-spoonful of guano to the hill. The plant is three to six feet high; average number of bolls; the bloom is yellow; boll smaller than common cotton, inclined to be long and tapering; the lint has rather a yellow tint, but very fine and large. If planted earlier it will do better.

Walton County, Ga.—The Egyptian cotton seed received from the Department is likely to be of little value here. It fruits well, and resists drought, but the fruit is entirely too small and too late in maturing.

Clark County, Miss.—The Egyptian cotton seed sent from the Department will not answer for this climate. The summers are not long enough for it; it stands dry weather well. The plant is still green and blooming, while the common cotton of the country, where the leaves have not been destroyed by worms, are yellow and almost entirely shed off.

Kemper County, Miss.—The Egyptian cotton seed was planted as other cotton. The leaf is large and the bloom yellow; too stalky and very little fruit; does not lint out well; unless it does better after acclimation it is worthless.

Culpeper County, Va.—From three quarts of the Touzelle wheat, received from the Department, sown on one-tenth of an acre, I harvested five bushels, weighing 66 pounds per bushel. It ripened June 1, about eight days earlier than other varieties.

Cumberland County, Va.—The Touzelle wheat received from the Department last year has proved very prolific. From one quart I saved one bushel and seven gallons.

Dixon County, Neb.—The Arnautka spring wheat received from the Department yielded four bushels per acre more than other wheat cultivated here. Its growth is vigorous, and it appears to be well adapted to this part of the country. If it has any fault it is that

the kernel is a little more flinty than some other varieties. The asparagus seed has done exceedingly well; so also the blood-red beet.

Shawnee County, Kansas.—Tappahannock wheat received from the Department has yielded 30 bushels per acre; quality equal to the seed received.

Auglaize County, Ohio.—Tappahannock wheat partially failed this season, on account of rust; previously it has had a good reputation.

Carroll County, Ill.—The Tappahannock wheat failed from not being hardy enough to endure the severity of our winters. The Polish winter wheat was sufficiently hardy, but matured too late to escape rust. The Schonen oats were destroyed by the rust. They were sown late, and the failure may be owing to this.

CRANBERRIES.

Ocean County, N. J.—Cranberries, which are an important crop in this county, are a partial failure. Many of the parks are affected by scald, worms, grasshoppers, or a stunted growth, so that there will be not more than two-thirds of a crop.

Atlantic County, N. J.—Cranberries have been badly scalded on most three year-old meadows; on old meadows the crop is very fine.

Norfolk County, Mass.—Heavy frosts. Cranberries have suffered; more than half the crop destroyed.

Tyrell County, N. C.—The cranberries growing wild in the swamps and marshes of this county are very fine, the berries large and full.

Portage County, Wis.—Cranberry lands are advancing greatly in price; the profits of the business are said to be very large.

HOPS.

Madison County, N. Y.—Very few of first quality raised, lice having destroyed the vines. First quality are selling at 50 to 60 cents per pound.

Oneida County, N. Y.—Crop harvested about one-third as large as last year, and quality very poor. Some of the best cultivated yards not harvested, while others have yielded not more than 300 to 400 pounds to the acre. Causes, lice and mold. Prices range from 30 to 60 cents per pound, according to quality.

Franklin County, N. Y.—Crop reported too high in September. It will not exceed two-fifths of a crop.

Outagamie County, Wis.—The cultivation of hops has very much decreased; three-fourths of the yards have been plowed up for other crops.

SAFFRON.

Madison County, N. Y.—Saffron is raised here in small quantities for commercial purposes. Last year it sold at \$4 to \$6 per pound. Present price \$1 to \$1 50 per pound, offered by speculators.

MUSTARD.

Monterey County, Cal.—In Castroville, in this county, this year, Mr. J. J. Heating raised 83,173 pounds of mustard-seed on sixty acres of land.

SERICULTURE.

Tooele County, Utah.—Our mulberry plantations are doing finely; we expect to raise quite a number of silk-worms this season.

HAY IN LOUISIANA.

Rapides Parish, La.—More hay is being gathered than for many years, probably 100 per cent. more. The mode of cutting is quite primitive—the instrument the hoe, chiefly.

ALFALFA CLOVER.

Colusa County, Cal.—Farmers are beginning to sow alfalfa, (Chili clover,) which produces about three tons of hay per acre, at each cutting, twice a year; if irrigated, three tons three times a year.

GRAPES AND WINE.

Albemarle County, Va.—There are several good vineyards in this county which are producing very abundantly. The grapes have been converted into wine this season, as the market price was too low to warrant their sale. We look forward to the day when many of our now barren hills will be clothed in this beautiful and remunerative crop.

Orangeburg County, S. C.—There are a number of vineyards in this county, and a good deal of very fine wine has been made. The Scuppernong grape is the favorite.

Williamson County, Texas.—In this county 10,000 gallons of wine have been made from the mustang grape. The first pressing of the grape makes a superior wine, similar to brown sherry; the second pressing is quite like good claret. The mustang grows wild over the greater portion of the State, and if all the grapes were made into wine it would be worth more than the cotton crop of the State.

ORANGES.

Putnam County, Fla.—The orange crop will be diminished about one-fourth, but what is lost in quantity will be principally made up in the improved quality of the fruit.

INFERIOR COTTON SEED IN FLORIDA.

Wellborn, Suwanee County, Fla.—We greatly need reliable seed in Florida, especially of the sea island cotton and improved varieties of sugar cane. The seed of our sea island cotton is poor, old, mixed, degenerated, and unreliable. I planted six acres and spent two days in picking, and know the foregoing to be true. The seed was the best I could find; the bolls are of all kinds; some passably good, other bolls almost entirely seed without staple. From some bolls the cotton falls as soon as ripe; others have to be opened with force. The entire yield of staple is small, and the seed large. Frequently seven pounds of seed cotton are required to make one of lint.

PRODUCTS OF PRINCESS ANNE COUNTY, VIRGINIA.

Princess Anne County, Va.—Fish, oysters, crabs, and wild fowl constitute an important industry in this county. Large quantities of spots, a fish noted for its rich, delicious flavor, are now being taken on our coast. The celebrated Lynnhaven bivalves are in demand at \$3 per bushel. Wild ducks are beginning to appear, but the "ducking season" proper begins in October.

IRRIGATION IN CALIFORNIA.

Colusa County, Cal.—Our farmers are beginning to irrigate on a small scale, and are making flood-gates out of wrought-iron instead of wood. Where there is no rain for six months wooden gates shrink, and are apt to break the next season. We are now making round tubes, one to six feet in diameter, with the gate in the upper end.

HOGS IN NORTHUMBERLAND, PENNSYLVANIA.

Northumberland County, Pa.—Hogs have become so numerous, and the corn crop is so large and good, that fresh pork will, it is thought, by the holidays, sell for six cents per pound by the hundred-weight. Small pigs, four to five weeks old, can now be purchased for fifty cents per head. In fact hogs are more plenty now than before the war. Our breeds have also been improved, being mostly a cross between the old country hogs and the large and famous Chester County white hogs.

DISEASES OF STOCK.

Gloucester County, Va.—Horned cattle have been attacked with "murrain," and large numbers have died. One farmer lost two-thirds of his herd, embracing nine out of eleven milch cows. The mortality has been far beyond that of any previous year for the last twenty-five years, and it still continues.

Knox County, Tenn.—Cattle, especially milch cows, are still dying near where the Texas cattle were fed as they were shipped through to Virginia. Cholera is again making its ravages among the hogs and chickens in different parts of the county.

Woodson County, Kans.—Many cattle have died of Spanish fever in the southeastern portion of the county during the last two weeks. A drove of Texas cattle were driven through that part of the county in August, and in about two weeks the disease broke out among the native cattle. Several horses died of the same disease. The symptoms of the horses were the same as of the cattle.

Labette County, Kans.—Spanish fever is prevailing among cattle; has proved fatal to many herds.

Lebanon County, Pa.—A disease among chickens (said to be worms in the throat) has in many instances destroyed nearly whole flocks. Tobacco-smoke, turpentine, and drawing out the worms with small pinchers, are remedies used with more or less effect.

Graves County, Ky.—Hog cholera is raging to considerable extent, and chickens are affected by a similar disease.

Spencer County, Ky.—Hog cholera is prevailing in isolated cases.

Lucas County, Iowa.—Many hogs have died of cholera; some farmers have lost all; no remedy found.

Newton County, Ark.—Number of hogs reduced 60 per cent. the past summer by cholera. "Murrain" is making sad havoc among the cattle of this county.

SOUTHERN AGRICULTURE.

The Department of Agriculture has omitted no opportunity to aid in organizing anew the rural industry of the South, prostrated by civil war, and limited by traditional usage to a few specialties, while its variety in climate and soil actually adapts it to the widest range of possibilities,

which combine all the capabilities of the temperate and many of the tropical zone. To this end, ramie, jute, tropical fruits, and various promising grasses, and many other plants hitherto unknown on this continent, have been introduced, and valuable seeds of cereals and garden vegetables have been distributed, greatly to the advantage of southern agriculture. During the past two months large quantities of seeds of cereals and grasses have thus been distributed, and a choice selection of vegetable seeds is now in process of distribution, all in ample time for early planting of field and garden.

The following letter of the Commissioner, addressed to the president and members of the Agricultural Congress recently convened in Nashville, Tennessee, expresses his views concerning some of the means to be used for the improvement of the agriculture of the South:

DEPARTMENT OF AGRICULTURE,
Washington, D. C., September 28, 1871.

To the President of the Agricultural Congress, Nashville, Tennessee:

SIR: I congratulate you upon the assembling of your convention. The meeting of northern farmers and southern planters in a southern city, upon the invitation of southern gentlemen, for the purpose of discussing mutual interests, is auspicious of a better understanding between the people of both sections, and indicates a disposition to bestow upon questions affecting the material welfare of the country some portion of that attention which has of late been directed to questions chiefly political. Surely there exists no good reason why those who live upon the same soil, speak the same language, and share the same heritage of blessed privileges should not agree to join hands in the common cause of material advancement, although they may not be of one mind in the consideration of other questions. Such conventions as yours make such agreement possible, and give assurance of its permanency. Your meeting accords with the various industrial and agricultural meetings of the year which have had a national scope and purpose, and I trust that it may be followed by others of like character which will bring in their train prosperity to all sections and increased development of our national wealth. It is the South that to-day most needs this prosperity, and it is in the South that the sources of national wealth have been most neglected. The sittings of your convention may, therefore, well be devoted in large degree to an inquiry into the best means of fostering the industries adapted to the South, especially agriculture.

Official intercourse and correspondence with southern gentlemen and the tone of southern journals convince me that the whole people of the South fully realize that their industrial methods have not heretofore been conducive to their best interests, and that enduring prosperity can only come with the introduction of new methods. What these new methods shall be is a problem which a glance at the present wants of the South may help to solve.

With the complete restoration of order and tranquillity in the South, which it is the hope of all good men may not longer be delayed, an opportunity will be afforded for capital to take fresh courage, for labor to assume more settled conditions, and for emigrants from the Northern States and from Europe to push into every Southern State with the same sturdy enterprise that now leads them into the shadows of the Rocky Mountains and upon the far-off line of the Northern Pacific Railway. These are the three great wants of the South to-day: Capital that shall be active, labor that shall be judiciously employed, and population that

shall possess the waste places and make them vocal with the hum of busy industry. The time is near at hand when all these elements of material greatness may be possessed by the South if it will but learn a lesson from the example of those communities and nations which have become rich while it has become poor.

Undoubtedly, the first of the new methods essential to the new life of the South is a diversification of industry. The example of Germany conclusively shows that the nation which utilizes all its forces and encourages the employment of every human faculty is the one which takes deepest root and offers the greatest resistance to storms, while the example of Persia and Turkey and Portugal shows that nations which engage in one pursuit to the comparative neglect of all others do not have a flourishing growth, and are not capable of resisting adversity. The people of the South should so direct their future that success will not be contingent upon a bountiful harvest from a single crop. They should establish new manufactures and stimulate those already established; open new mines and develop those already opened; build railroads and spread wider the wings of foreign commerce; and, most important of all, divide their thousands of exhausted acres into small farms and farm them well.

The South has abundant water-power, extensive coal-fields, and cheap labor. If it will but put forth its hand it can successfully compete with either New England or Old England in the manufacture of many articles to procure which it now sends its money abroad. Especially can it manufacture the coarser grades of cotton fabrics and shoes for its working classes. In more than half of the States lying south of the Ohio may be found iron ore of the best quality, and other valuable minerals. The example of Pennsylvania shows how prosperous a people may become who will manufacture iron. Tennessee may become another Pennsylvania if it will. By employing its laboring population in manufacturing enterprises, the South will not only retain within its own borders the money of which it is now depleted, but it will have more to sell to other countries. And the more it has to sell the more miles of railroad will be built, the more certain and remunerative will be the home markets of its farmers, and the greater will be the ability of all its people to possess themselves of comforts and luxuries drawn from every quarter of the globe.

But the South needs most to diversify its agriculture. By devoting its capital and energies mainly to the cultivation of cotton, it has produced two disastrous results: its soil has been exhausted, and it has been compelled to rely upon the West for its bread and meat. To remedy the first error will require time and the exercise of the best brain of the South; but the concentration upon small areas of the efforts now bestowed upon large plantations will be a necessary accompaniment of all remedial agencies. The second error of looking to the West for the necessities of life can easily be corrected by growing all those food-producing crops suited to the South. There are few States in the South in which wheat and corn will not do well; fewer yet in which some of the grasses and the various edible roots will not grow. Cattle and hogs may be raised with profit where these conditions exist, and not the least of the profit will be the fertilizing elements which they will return to the soil if confined to close quarters. An improvement of the breeds now in general use would increase the income from these sources. The South also produces many kinds of fruit and a long list of the choicest vegetables. Indeed, there is scarcely a limit to its food-producing capabilities. A southern journal has recently stated that, with the exception

of coffee, there is not a product of the soil pertaining to the tropical or temperate zones, and which is of real use to man as food, which cannot be grown in the South.

In the efforts which southern people may make to improve their agricultural methods they shall receive my hearty sympathy and earnest co-operation. The Department over which I have been called to preside was established for the benefit of the *whole* country, and I invite southern men to look to it as to a friend, and to make free use of the facilities it offers.

I am, sir, very respectfully,

FREDERICK WATTS,
Commissioner of Agriculture.

DROUGHT AND FIRE IN THE NORTHWEST.

Our correspondents in the Northwestern States send us distressing details of the effects of the two months' drought throughout the most of that region, and of the terrible fires which have, in a great measure, resulted therefrom. The earth is dried to such a depth that it acts as a conductor, and living trees are falling from the action of the fire which undermines them. Streams and wells are unprecedentedly low, or entirely dry; vegetation is dried up; fields are so parched that there is little succulent food for stock. The fire-fiend has followed with appalling fury, causing fearful destruction of life and property. For several weeks great fires have been raging in the woods, in the dried marshes, and along the lines of railways, consuming buildings, fences, crops, and destroying live stock, desolating hundreds of square miles, and rendering homeless and without food or employment thousands of men, women, and children, just at the opening of winter. The loss of life is of frightful magnitude, and rarely in the history of the world have these fires been equaled in the destruction of human life and of property and in the desolation of whole communities. Towns and villages have been swept out of existence in the space of a few hours, and thousands of human beings have been burned, drowned, or have fallen victims to other violent forms of death. Not less than fifty villages, in the States of Wisconsin and Michigan, have been wholly or in part destroyed. The town of Peshtigo, Wisconsin, with a population of 1,500 to 2,000, has been entirely consumed, not a vestige of its habitations remaining, and those only of its population escaped who threw themselves into the river and reached the opposite shore. Hundreds were burned, suffocated, and drowned. This fire, driven by the high winds, swept over an area of eight miles square, destroying houses, barns, fences, &c., and the loss of life will number over a thousand. The Belgian settlement of Brussels was almost entirely consumed, many persons are missing, and the survivors are left destitute amid the ashes of their ruined homes. The whole coast, from Green Bay to Menomonee, has been devastated, many villages consumed and their population made homeless wanderers, dependent upon charity for the necessities of life. On the east shore of Green Bay the loss of life is placed as high as at Peshtigo, and the destruction of buildings, fences, stock, &c., is complete. More than a dozen towns along the eastern shore of Michigan have been swept away, and many hundreds of people left without food or shelter. A large district, including several towns, has been devastated

on the western coast. The town of Manistee, with a population of 4,000, has suffered severely by the flames, and the loss of property is stated at not less than one million of dollars. In the counties of Huron and Sanilac, with a total population of 24,000, ten thousand must commence life anew, having lost everything but their lives. Besides the frightful loss of life reported, hundreds have been disabled, many partially roasted, causing additional suffering and destitution throughout the region devastated. Detroit, Port Huron, Milwaukee, and other cities have converted all available space into hospitals, and the citizens have become nurses.

Destructive fires are also raging in the forests and on the prairies of Minnesota, Iowa, Missouri, Indiana, Ohio, Kansas, Colorado, Wyoming, Dakota, and in Ontario, Canada, involving immense losses of property, of live stock, and of human life. In Minnesota the fire swept over the prairie into the forests of Glencoe, Le Sueur, Mankato, and New Ulm. The fire is said to have reached nearly as far south as the Iowa border, and east to the Minnesota River. Many small towns have been completely destroyed, and the farms in the track of the flames have been almost invariably swept of buildings, fences, crops, &c. Northern Minnesota is also the field of similar disasters. Nemaha and other counties in Kansas have suffered from these prairie fires; also various sections of Missouri and the other States named. In California fires are said to be raging in the mountains the whole length of the State. Copious rains in the regions of the Northwest, which have been the most fearfully scourged, have diminished the ravages and may soon exhaust the destructive power of the flames; but the devastation already accomplished is sickening to contemplate, and the sufferings of the people must be great the ensuing winter, and the agricultural interests of the burned districts will be crippled for some time to come.

THE JUTE PLANT.

Mr. E. H. Derby, of Boston, Massachusetts, who has taken much interest in the introduction of the jute plant into the United States, forwards to the Department for publication the following letter from Mr. R. Macallister, Calcutta, India, in reference to the cultivation and gathering of the plant and the separation and curing of the fiber:

The seeds are sown in the months of March and April, broadcast, on plowed land, preference being given to moist high ground, situated if possible on the bank of a river, and somewhat sandy. As a general rule manure is not used, but animal dung has been employed to advantage; nor is it necessary to irrigate the ground, as no more water is required than is sufficient to keep the roots moist, for which the ordinary showers of this country generally suffice. It is allowed to grow three to four months, and is cut in the months of June, July, and August, when it has attained a height of $7\frac{1}{2}$ to 12 feet, the size depending of course on the fertility of the soil and the season.

The time chosen for cutting is just after the flowers have turned to seed and before the seeds begin to ripen, for it is found when cut thus early to be of better color and to have less root. When the seeds are allowed to ripen it appears that the fiber becomes stiff and hard, and the inferior portion of the stem changes color, becoming blackish or reddish.

When cut the stalks are tied in bundles and thrown into tanks of dirty water and allowed to remain there five to eight days to rot, (the dirtier the water the faster, I believe, the rotting process takes place,) at the expiration of which time they are taken out and the fiber falls from the stick. The fiber is then hung up to dry and when dry is assorted, packed in round bundles called drums, and sent off.

The finer qualities of jute sometimes attain a height of 15 feet. The smaller the plant the lower the quality. The seeds are used for cultivation only. They contain very

little oil, and no one has ever thought it worth while to crush them, neither have they ever been tried for feeding poultry or cattle. Small plants yield more seeds than the larger ones, and supposing all the plants on an acre to be allowed to ripen, the yield of seed would be about one hundred and twenty pounds, as I am informed.

To encourage the general cultivation of this valuable fiber-plant in the Southern States, the Commissioner of Agriculture has ordered a large quantity of the seed for distribution. The seed heretofore distributed by the Department is reported to have succeeded admirably. It is stated that on the banks of the Lower Mississippi, with little or no cultivation, in the course of three months it grew 8 to 12 feet high, maturing an abundance of seed. It can probably be raised as easily as hemp throughout the South, and in a large part of the Mississippi Valley, and possibly as far north as Virginia and Tennessee.

CUNDURANGO.

The Secretary of State, Hon. Hamilton Fish, has transmitted to this Department a package containing specimens of the fruit and seed-bearing capsules of the "cundurango" plant or vine, received from Charles Weile, United States consul at Guayaquil, together with the following extract from the official letter of the consul:

I have just returned from a visit to the cundurango region, in the province of Loja, where I spent a month in collecting the different species of the plant. Dr. Destruge, of this city, an excellent botanist, has classified the vine as belonging to the order *asclepiadiæ*. The word "cundurango" is a compound of "*cundur*," eagle, and "*ango*," a vine. The aborigines probably applied this name owing to the winding growth of the vine, and because it seeks the highest trees for its support. Its growth is most vigorous in moist places, on the banks of rivers and creeks, where the body often attains a diameter of two to three inches, diminishing gradually to tendrils at the top. The family is a numerous one. Leaves, vines, fruit, and flowers of the species differ materially, but all contain—some in a greater degree than others—a liquid that resembles milk, and which, exposed to heat, or coming in contact with other bodies, coagulates and forms an aromatic resinous substance.

Inclosed was a list of the specimens and a piece of the balsam which the milk produces. The list names the following varieties, all found at Zaruma: No. 1, *Cundurango Pepino*; No. 2, *C. Tumbo Grande*; No. 3, *C. Tumbo chico*; No. 4, variety of *C. Tumbo Grande*; No. 5, *C. Paloma Grande*; No. 6, *C. Batea Grande*.

The seeds received by this Department will be propagated, with the design of testing the practicability of the cultivation of the plant in some section of this country, should its production be found to be desirable.

ENTOMOLOGICAL RECORD.

[The "Entomological Record" of the monthly report, to be a permanent feature hereafter, is prepared by Prof. Townsend Glover, entomologist of the Department.—ED. REP.]

As the Department of Agriculture has lately received several communications inquiring about the natural history and habits of the grape-vine hopper, improperly called the vine-thrips, a very small insect which, for several years past, has been extremely injurious to the foliage

of the cultivated grape-vines by puncturing the leaves and sucking out the sap, it may be well to give a short history of the insect, from the egg to the full-grown imago, and the various remedies already proposed to destroy them.

The grape-vine hopper, *Erythroneura (Tettigonia) vitis*, is a very small

Fig. 1. insect, about 0.13 inch in length, of a pale yellow color, with two blood-red bands, and a third dusky band across the wing-covers. It is supposed by most entomologists that these insects pass the winter in the perfect state, hybernating under bark, dead leaves, and rubbish; but during the last winter



a thorough search was made in the neighborhood of some grape-vines which had been very much injured by the leaf-hoppers the previous season, and no mature insects could be discovered, either under the loose bark of the grape-vine, the supporting posts, or under the leaves and loose rubbish near the vines. It therefore appears probable that some of the early broods may be produced from eggs laid by the parent insect the previous autumn, either on the stem of the vine itself, or on foliage. The first perfect grape-leaf hopper this season was found in April, and had probably hybernated on the stem of the vine, under the bark, as before mentioned. The insects, as soon as hatched, commence to suck the sap of the plant, and change their skin several times before attaining their full size; and these cast-off white skins may be seen in the autumn in multitudes, adhering to the under side of the leaves, each of them with a slit down the back, through which the perfect insect has escaped.

As larvæ, or when very young, they do not possess any wings, and it is only in the adult state that the perfect wings are acquired. The leaves injured by these insects appear at first flecked and spotted with whitish marks, showing where the sap has been drawn out by the leaf-hopper. They then assume a sickly appearance, and if the insects are very numerous the foliage will finally turn brown and fall to the ground. Some varieties of vines suffer more from this pest than others, and the Clinton, Delaware, and other thin-leaved grapes are said to suffer the most

Fig. 2.



from their attacks. There are several other species of vine-hoppers beside the *Erythroneura*, mentioned by Harris, which injure the foliage of the grape-vine, and we have found a species of *Typhlocyba* as destructive in Maryland and Virginia, puncturing the leaves and sucking the sap in a similar manner.

The remedies already proposed for the destruction of these insects are syringing the vines with strong tobacco-water or soap-suds. A very weak mixture of carbolic acid and water has also been recommended, but when made too strong the leaves are apt to be injured. Dusting the vines with lime, wood-ashes, lime and sulphur, is said to be beneficial, and fumigation with strong tobacco when under glass will destroy many of them. Mr. Saunders, of Canada, states that a lighted torch carried through a vineyard at night will destroy multitudes, as they fly to the light and are burnt. This should be repeated several times at short intervals. He also says that constant stirring the earth in the immediate vicinity of the vines in spring and autumn will probably operate by disturbing the perfect insect (and eggs) by exposing them to the frost. As lights also attract these insects at night, if a lantern were placed immediately over a pail or tub nearly filled with water, on the surface of which a little oil or turpentine had been poured, whenever the vines were disturbed the insects would immediately fly toward the light and fall into the vessel below and perish by hundreds. The same plan

would also answer if lights were placed before or on boards painted with a thick sirup, or any adhesive substance like the celebrated fly-paper. In the former part of this article, it was mentioned that the common name of thrips is misapplied when used to designate the grape-leaf hopper, the true thrips being a very different insect and belonging to an entirely different family. The true thrips is very minute in size, and has a long and slender body; the wings are long, narrow, and *fringed with fine hairs*; they live on leaves, flowers, buds, and also infest grape-leaves. And although almost all European authorities are unanimous in saying that they are injurious to grains, foliage, &c., Mr. Walsh states that although hitherto considered as vegetable-feeders, they are generally, if not universally, insectivorous, and feed on the eggs of the wheat-midge and other insects. Mr. Riley also states that a species of thrips destroys the eggs of the curculio. Notwithstanding these proofs of the "cannibal" propensities of the true thrips, we are also convinced that it causes injury to several kinds of plants by draining the sap from them; as some grape-leaves, infested by the true thrips, and with no other insect on them whatever, when subjected to examination under a powerful microscope were found to have the sap exuding in minute drops or globules from numerous small punctures or holes made in the leaves, and which had evidently been made by the thrips, as some of these insects were actually employed in boring the leaves at the time, and no eggs or any other insects could be discovered. It is true the thrips may possibly destroy the eggs of the vine-hopper, and of other insects also, but no doubt they also injure foliage by draining them of sap. This fact may be more plainly demonstrated by examining the plants in any green house infested with the true thrips, where there are no vine-hoppers whatever, and the thrips-infested plants may readily be recognized by their spotted and unhealthy appearance. Some of the same remedies already proposed for the destruction of the vine-hoppers, as syringing with soap-suds, &c., would probably also answer, if applied, to destroy the true thrips.



SCIENTIFIC NOTES.

VOELCKER ON SOILS.—Mr. Voelcker, an eminent agricultural chemist, lately delivered a lecture before the Chemical Society of London upon the productive power of soils in relation to the loss of plant-food by drainage, in which he took occasion to refer to the inutility, for most purposes, of the analysis of soils, as ordinarily conducted. He states that there are many apparently similar soils—that is, soils in which analysis shows like quantities of the same constituents—which differ widely in their productive powers, owing to the fact that the indications are of ultimate composition instead of showing states of combination in which the ingredients exist in the soil.

Another consideration of importance is that soil analyses throw no light upon the physical or mechanical conditions which affect the fertility of land. The productiveness of land is much influenced, too, by the character of the sub-soil and its composition in relation to the surface-soil, of which a soil analysis conveys no information. Again, meteorological conditions, such as the aspect of the field, the prevailing wind, the amount of rain, and the distribution of the rain-fall in the year, are

all of the utmost importance in farming, and are, of course, not indicated by any analysis.

Dr. Voelcker, however, would not be considered as regarding such analyses as of no value, since in many cases quite the contrary is the fact. For instance, it is easy to determine whether a soil is deficient in lime or not, and thus ascertain whether it is proper to impart a dressing of this mineral. It is also known that potash salts may be applied with great advantage on some soils, while on others their fertilizing effects are scarcely perceptible; and the determination of the question whether there be enough potash in the soil will enable us to decide upon the proper action in this respect.

Again, it is possible to ascertain, by finding whether there is potash in clay, as to its being benefited by burning; burnt clay being an excellent fertilizer if the clay contains undecomposed silicates of potash; but the expense of this process would be entirely wasted if the clay be naturally poor in alkaline silicates. Again, peaty soils are often completely barren, this condition being due, in most cases, to the presence of sulphate of iron and finely divided iron pyrites, so small an amount as $\frac{1}{4}$ per cent. of the former being quite sufficient to render a soil entirely unproductive.

We can also ascertain by analysis whether a soil contains an excessive portion of one or more matters otherwise useful to vegetation, such as nitrate of potash, chloride of sodium, &c. It appears to be the fact that all soils which contain readily soluble salts, in quantities admitting of precise determination, are more or less unproductive, although the salt may be a very effective fertilizer when applied in a weaker solution. Thus, a soil containing $\frac{1}{10}$ per cent., or even less, of common salt hardly grows any crop; this being the case with land inundated by the sea. Such a proportion, indeed, of any substance is much greater than could at any time be applied with safety, while very minute quantities are frequently of the utmost efficiency; for so small a quantity as 50 pounds of nitrate of soda, applied to an acre of grass land, or to wheat or barley, and thoroughly washed into the soil, will produce a most marked effect in the darker green color and greater luxuriance of the herbage compared with the portion not so treated. One hundred pounds of ammonia applied to an acre of land, in the shape of sulphate or of chloride of ammonium, has been known to raise the average produce of wheat 20 bushels, with a corresponding increase of wheat straw; and 300 pounds of superphosphate of lime, of good quality, has been found to increase the turnip crop in favorable seasons from six to ten tons per acre.

If a man wishes to make a living by farming, Dr. Voelcker thinks that at least from three to five times as much of all the more important fertilizers must be put annually upon the land as is removed from it in the crops, a depreciation in the crop resulting when a materially less amount is applied.

EFFECT OF KEEPING FLOUR IN BARRELS.—As is well known, flour kept in barrels for a long time often acquires a peculiar odor, supposed to be derived from the barrel. Professor Poleck, of Silesia, has lately made a careful examination of such flour, and has ascertained that this smell actually indicates an incipient decomposition prejudicial to bread-making, the gluten of the flour having in part become changed into a soluble body. Thus, while sound flour preserved in sacks contained 11.06 per cent. of gluten and 1.44 per cent. of soluble albuminous matter, four other specimens of flour taken from different barrels were severally composed of 8.37 per cent. gluten to 2.14 per cent. soluble albu-

men; 7.40 per cent. to 6.90 per cent.; 7.23 per cent. to 4.44 per cent.; and 6.54 per cent. to 6.46 per cent. Two samples with more than 6 per cent. of soluble matter had an acid reaction, while the others were neutral. Professor Poleck believes this chemical change of the flour to be induced by the fact that the barrel prevents communication with the atmospheric air and the equalization of temperature. This view is confirmed by the oft-repeated observation that flour in sacks keeps fresh for a much longer time, and that the mustiness in barrels always develops first, and exists in the highest degree in the center, viz, that portion most remote from the outer air.

EFFECT OF THE FOOD OF COWS ON THE COMPOSITION OF THE MILK.—A series of experiments prosecuted not long since in Germany led to the conclusion that, contrary to the usual impression on the subject, very considerable changes in the composition of food may be made without inducing corresponding changes in the relative constituents of the milk of the cow; the only effect being in the amount of the concentration of the milk. To determine these results with accuracy, Dr. Kuhn has repeated the experiments, with the general result of showing that an increase in the albumen and fatty elements of a moderate diet produces an increase in the milky yield, which gradually rises (along with bodily condition) to a certain maximum, corresponding in each case with the maximum increase of the above elements. Sooner or later, however, the natural diminution depending on the duration of lactation occurs, and no increase can be produced by increasing the food. Diminution of the above elements of the food causes a diminution in the milk yield. The addition of fat increases the ingredients of milk generally, and has no special influence on the amount of fat in the milk. The absolute production of the individual elements of the milk agrees generally with the relative production of the milk as a whole, (most regularly in the case of sugar.) The variations from this are different for the different ingredients.

In the percentage numbers, sugar does not seem to be affected by the diet. The variations in the amount of albumen are so small as not to be capable of determination. No influence on the amount of caseine could be traced to the food. The influence of food on the amount of fat is seen to be very small. When it appeared to be altered it was after increase of the albuminoids of the food. Increase of the fatty elements of the food did not specially affect the amount of butter; the variations in the percentage amount of caseine and fat are to be attributed to irregularities in the fat production in the gland. The farmer must therefore not hope by variations in the food to produce a "butter-cow" or a "cheese-cow." The differences in this respect are differences of stock and individuals.

PITH OF WOODY MATTER.—Mr. A. Grès, in a recent memoir upon the pith of woody plants, endeavors to show that this pith, in the dicotyledonous species, is not simple and uniform in its organization, as has been supposed, but that it is capable of furnishing appreciable characteristics for a natural classification. He finds that it preserves its vitality for many years, sometimes even to a very advanced age, and that it contains in one part or other of its cellules a supply of nutritive material in the form of starch and tannin, which is taken up again at the moment of the development of the new verdure in spring. He thinks, also, that it participates with some of the tissues of the wood itself in the nutrition of the plant, and that it fills an important physiological place

being far from drying up after the second year, and thus becoming subsequently only a dead tissue.

INFLUENCE OF HEAT OF SOIL ON GROWTH OF PLANTS.—The result of a recent investigation by Bialoblocki, in regard to the influence of the warmth of soil upon the development of certain cultivated plants, is summed up by him in the following words: The influence of warmth of the soil is made manifest in two directions; in the shortening or lengthening of the period of vegetation, and in affecting the external form of the plant; the acceleration of growth of vegetation occurring principally in the earlier periods. With an ascending temperature of the soil, vegetation is forwarded up to a certain point. From the moment, however, when this point is reached, an increase of temperature in the soil actually retards growth. The maximum point of favorable temperature of the soil varies for different plants; but the maintenance of a constant temperature has for its result a more vigorous growth of the plant experimented on. The extreme limit of a constant temperature of the soil at which a growth of the roots can still take place, we may assume to be below, but very near 104° F. A ground temperature of 50° F. barely allows plants to fulfill completely all their functions of life and conditions of development. An increased ground temperature has no special influence upon the absorption of nutritious matter through the roots; and the accelerated growth resulting from an increase of heat is usually accompanied by a greater percentage of water in the plant.

MAKING SUGAR FROM FALLEN CANE.—At a late meeting of the Academy of Medical, Physical, and Natural Sciences of Havana, Mr. de Castro presented a communication of important practical moment, bearing upon the feasibility of obtaining sugar from cane that has fallen to the ground and thrown out roots into the earth from its joints. It has generally been supposed that the development of these roots takes place at the expense of the crystallizable sugar; but a critical comparative analysis, made by Dr. Koehl at the plantation Las Cañas, of juice extracted from the normal cane, and from that which had thrown out the roots in question, shows that the development of the latter does not interfere appreciably with the amount of sugar in the cane; or, at least, to so slight an extent as not to affect the saccharine richness of the plant. For this reason fallen cane, and cane which has been thrown down by hurricanes, can be turned to almost as good account as if it had remained erect.

LACTARIN.—Lactarin is a substance which has been lately introduced as a substitute for albumen, for manufacturing purposes; and it is said to have great advantages on the score of cheapness and convenience of preparation. It is essentially a form of caseine, rendered impure by a little fat and the salts of milk. For use it is diluted with water, dissolved in ammonia, and then added to the coloring matter.

DETERMINING TANNIN IN OAK BARK.—A method lately introduced by Loewenthal for determining the amount of tannin in oak bark is based upon the fact that tannin, in the presence of indigo, is decomposed by permanganate of potash in such a manner that, with the final disappearance of the blue color, the last trace of the tannin is also decomposed. For this inquiry the following liquids are needed: First, a solution of indigo carmine; second, a solution of tannin; third, a solution of the chameleon mineral or permanganate of potash; and fourth, a solution of oxalic acid.

APPLICATION OF POTASH TO PLANTS.—Professor Nobbe, of Tharand,

has lately published the result of certain experiments made by him upon potash as a nutrient of plants, the method adopted being one to which we have already referred, and known as the "water culture." The plants experimented upon were buckwheat and rye, although the conclusions arrived at had reference more particularly to the former. The solutions used were divided into those in which the potash was completely excluded, or in certain cases replaced by bodies of similar chemical properties, and into those in which potash is present, but in different chemical combinations. The general conclusions reached were that, in solutions free from potash, otherwise nutrient, the plants vegetated as if in pure water. They were unable to assimilate, and exhibited no increase in weight, for the reason that without the co-operation of the potash in the chlorophyl grains no starch was developed. The chloride of potassium was found to be the most effective form of combination under which the potash could be offered to the buckwheat plants; next to this came the nitrate of potash. With sulphate or phosphate of potash, a disease was developed sooner or later, which, starting with a positive heaping up of the starch, ended in preventing the starch from being taken into the chlorophyl grains, and rendered useful in vegetation. Soda and lithia were found incapable of replacing potash in a physiological point of view; furthermore, while soda was found to be perfectly useless to the plant, lithia, when introduced, proved to be positively destructive to the vegetable tissues.

INFLUENCE OF AMMONIA ON THE COLOR OF FLOWERS.—An experiment was lately made by Vogel upon the influence of ammonia upon the colors of flowers, in which eighty-six species and varieties were exposed, under a glass bell, to a mixture of sal-ammoniac and lime-water, the fresh flowers being placed at the same height in all the experiments. As a general result a difference was appreciable between the action of the gas upon the colored matter deposited in granules, and that forming a solution, the effect being much less in the former than in the latter. In most cases the changes produced agreed closely with those which the coloring matter of the flowers passed through in the course of withering; and even in natural withering and fading there is the same difference to be observed between the soluble colors and the granules.

ORANGE FUNGUS OF BREAD.—At a late meeting of the Academy of Sciences of Paris, specimens of bread, baked for the use of the army, were exhibited, which had been rendered entirely unfit for food by the development of a yellowish-white substance, changing gradually to an orange-red color, and emitting a nauseous odor. Considerable agglomerations of this substance were formed, so as to fill all the cavities of the loaf. When examined by the microscope, this appearance was found to be due to the presence of a cryptogamic plant, already described as *Oidium aurantiacum*, and which was observed in the bread in Paris in the summer of 1843, and at a later period at Marseilles and in Algeria. The sporules of the *Oidium* were found to adhere to the husk of the wheat, and were probably abundant in proportion as this was in a humid state, badly cleansed, and had undergone alteration from the larvæ of the weevil, as it never occurs in bread of the best quality, carefully prepared.

WHEAT vs. FLOUR.—In Dr. Moffat's paper on "Geological Systems and Endemic Disease," before the British Association, after pointing out that anæmia, goitre, and phthisis were more prevalent among the inhabitants of the carboniferous districts than among those living on

the new red sandstone, he stated that analysis showed that the wheat grown upon the carboniferous system was deficient in phosphates or nutritive salts; and that a man who consumed a pound of Cheshire wheat per day took in nine grains more of phosphoric acid than one who took a pound of wheat grown upon the carboniferous system. The deficiency also of the nutritive salts in the bread compared with those in the wheat was very remarkable; and it was no doubt owing to the removal of the bran from the flour with which the bread was made. Medical men, he said, could not too much impress upon the minds of the public the importance of using flour made from the whole of the wheat or "whole grain." Professor Church, of Cirencester, has lately found in entire wheat 2.32 per cent. of nitrogen, equivalent to 13.40 per cent. of albuminoids, or flesh formers.

ANALYSIS OF SACCHARINE MATTERS.—During the late meeting of the British Association, Dr. Apjohn gave a brief sketch of the methods of analysis usually applied to different varieties of saccharine matters, stating that they were three in number, namely: The optical method, the chemical method, and that in which both these methods are combined. He then explained the principle on which the saccharometer of Edhil is based, and how, with the aid of this instrument, and a double observation with it, one before and the other after inversion of the sirup, the amount of cane-sugar in the saccharine material is determined. He considers the information thus obtained of the highest value, the cane-sugar being by far the most valuable constituent of crude saccharine matter. But the analysis is imperfect, since it gives no information as to the amount of the inverted sugar and the grape-sugar, which are invariably associated with the cane element, and does not even make it possible to assign the aggregate quantity of these varieties of sugar. The analysis, however, may be completed in a very simple way, namely, by acting with the sirup, after its inversion, upon Barrossmill's solution of copper, by means of which a third equation is obtained, which, as there are only three unknown quantities, conducts at once to a complete solution of the problem. The object of this paper, as stated by Dr. Apjohn, was principally to call the attention of chemists to the present imperfect state of saccharine analysis.

APPLICATION OF THE GERM THEORY TO MAKING PRESERVES.—Miss Lydia Becker, although best known as a writer on political economy and social science, gave a valuable hint during a recent discussion of the British Association upon the "Germ Theory," in which she showed its bearing upon the making of preserves, and keeping mold from settling on the jam. According to the old practice of leaving the pots uncovered for several days' time was allowed for the germs in the atmosphere to descend and settle on the jam, which was a capital soil, and the result was a plentiful crop of mold. She therefore advised the ladies in the section, when making preserves, to cover up the pots while the sweetmeats were in a heated condition.

ALBUMEN CHARCOAL.—A preparation called albumen charcoal has been devised for the purpose of clarifying sugar sirups, and for which it is said to answer an excellent purpose, a very small quantity only being required. Its application in clarifying wines has been suggested, although it is not stated whether it is exactly suitable. To prepare this substance, finely powdered and purified animal charcoal is to be mixed to a stiff dough with white of egg, and torn apart into small pieces, dusted with the charcoal, dried, and pulverized, and again kneaded with egg albumen to a dough, which is to be dried and powdered anew.

MATERIAL FOR BLEACHING WOOL.—According to a patent lately taken out in Melbourne, by Lande, one-sixteenth part of soap and one part of cyanide of potassium in eighteen parts of water, constitute an excellent material for bleaching wool or cotton. When used it is to be diluted with fifty times its bulk of water.

SPEEDY GROWTH OF RADISHES.—In the publications of the Acclimatization Society of Palermo, we are informed that radishes may be obtained at any season, and very quickly, in the following manner: The seeds are to be first soaked for twenty-four hours and then placed in bags and exposed to the sun. They will begin to germinate in about twenty-four hours, and are then to be set in a box filled with well-manured earth, and moistened from time to time with lukewarm water. In five or six days the radishes will attain the size of a small onion. To grow radishes in winter the box is to be placed in a warm cellar, covered with a top, and the earth moistened from day to day with lukewarm water.

LA PLATA OR CARNO GUANO.—The residuum of the flesh used in the establishments of Buenos Ayres for the purpose of preparing Liebig's extract of meat, is now to be met with in commerce under the name of La Plata, or Carno guano, and is recommended very highly as a manure. Analysis shows that this contains nine parts in one hundred of water, forty-one of organic matter, nineteen of lime, magnesia, oxide of iron, &c., ten of phosphoric acid, from one-half to one part of potash, and the rest of insoluble matter, such as sand, clay, &c. The nitrogen amounts to nearly 6 per cent.

LIQUID SOAP FOR CLEANING WOOL.—An excellent liquid soap, for cleaning and washing raw wool, according to Moser, may be prepared by using a kettle in which the mass can be heated, by means of a steam tube opening directly into it. The kettle (holding 150 gallons) is first to be half filled with water, which is then to be heated, and 68 pounds of caustic soda of 42 B, and 125 pounds of oleine added to it. This soap is to be boiled thoroughly for twenty to thirty minutes with continued stirring, and is then ready for use, forming a very homogeneous, so-called, soap-glue, of a sirupy consistency, and especially adapted for washing wool. Should the soap be required for fulling, an addition of some ammoniacal salt will be of advantage, to be introduced immediately before using. Instead of caustic soda, which it is sometimes difficult to obtain, we may use ordinary soda salt, which is to be rendered caustic by leaching through freshly burned and slightly moistened lime. Even ordinary potash lye, obtained from ashes, mixed with fresh quicklime, can be employed in this preparation.

RAISING APPLES AND PEARS IN DRY SEASONS.—An eminent pomologist in Brussels, De Johnghé, has succeeded in obtaining well-grown apples and pears in dry seasons by watering the trees from time to time, and by making holes in the ground underneath them and occasionally introducing some liquid, but not very highly concentrated, manure. This application is stated to be particularly important at the time when the fruit is setting.

REGIANINE.—According to Dr. Phipson, the English walnut, (*Juglans regia*,) and probably the American species also, contain, among other substances, one which he calls *regianine*, (obtained by treating the green husk of the fruit with benzole,) which appears in the form of a yellowish substance crystallizing in groups of feather-like crystals. These are

easily decomposed, and when treated with alkalies or ammonia, yield a splendid and durable red solution which, by a subsequent treatment, becomes the jet black, amorphous, pure regianic acid.

VOHL ON EXTRACTION OF FATS.—Much difficulty is experienced in keeping lard and other animal fats for any considerable length of time, without their becoming rancid or acquiring some accessory taste which renders them less fit for use. This rancidity results from several general causes, in most cases in consequence of the presence of water, or from a mixture of some nitrogenous substance. These fats are generally obtained in two different ways: In one, the raw fat is boiled with water, the clear, melted fat skimmed off, and the remaining water removed by adding pulverized salt, or otherwise. In the other the fat is cut into pieces after it has been washed with water, and heated, without water, at an elevated temperature, either with or without the addition of salt. In the first instance there is usually a considerable percentage of animal matter, especially of gelatine and fibrin, mixed with a certain percentage of water, which speedily pass into decomposition. In the second case, although this difficulty is less troublesome, there is almost always a burnt taste and more or less of color, while rancidity is less common.

In a late article, Dr. Vohl, of Cologne, presents what he considers a greatly improved method for the extraction of animal oils, so as to have them entirely free from the foreign substances referred to, and consequently not liable to change. For this purpose the fresh, raw fat is to be freed as completely as possible from the adherent particles of flesh and skin, and cut up into thin slices or small cubes. These are then to be washed with cold water (as free as possible from lime) until this runs off entirely colorless and no particles of blood remain in the fat. When properly drained off this washed fat is to be placed in a cylindrical tub-shaped stoneware vessel of about four feet in height and a foot and a half in diameter, which is inserted in a water-bath, which can be heated by steam to the melting point of the fat. At the bottom of the vessel is a cock of wood, earthenware, or porcelain, so attached that the vessel can be emptied while in the bath. After the vessel is filled to about three-fourths of its capacity with raw fat, a sieve-like perforated disk of stoneware is to be laid upon the surface of the pot, and 10 per cent. of extremely diluted and chemically pure hydrochloric acid added, in a proportion of 3 pounds of the acid (of 1.12 specific gravity) to 100 pounds of water. The vessel is then to be covered with a well-ground and tightly fitting stoneware top. By heating, the fat is melted in the cells, the membranous walls of which are dissolved by the diluted acid, allowing the fat to escape, which rises above the disk, this at the same time gradually sinking toward the bottom. All the membranous, unmelted portions are carried down under it and accumulate at the bottom with the dilute acid.

When all the fat is melted and all the membranous portions destroyed, the acid liquid is to be let off and the fat washed two or three times with hot water. (This acid gelatinous solution can be converted into an excellent manure by the addition of a powdered phosphorite.) A small quantity of carbonate of magnesia is to be added in the last washing, so as to completely remove the acid. The fat, thus washed, is now to be dissolved in its volume, or less, of canadol, in the course of which the water and nitrogenous animal substances are removed, and may be separated, by decanting. The clean fatty solution is now to be introduced into a tinned copper distilling apparatus, and the solvent again

recovered by distillation. The resulting fat will be completely free from smell, taste, and color, and is absolutely neutral, containing no trace of water or nitrogenous substances, on which account it can be kept without change for years. Although this method is somewhat tedious, it is yet effective; and taking into consideration the much greater quantity of fat extracted and its greater purity, its economy will be amply vindicated.

UTILIZATION OF SURPLUS POTATOES.—In cases where the potato crop is so large as not to be readily marketable, and more or less in danger of decaying through the winter, the surplus can be so treated as to furnish a valuable article of food, capable of preservation for a long time. For this purpose the potatoes are to be washed clean, steamed, peeled while still hot, and finally pressed through a fine sieve. The potatoes thus compressed are then to be laid, while still hot, upon gratings and dried as quickly as possible, say in ten or twelve hours, in order to avoid any souring or putrefaction; this being generally the result of drying too slowly, or with an insufficient heat. The potatoes dried in this way are of an excellent flavor, and can be packed and kept for years in a dry place, and are serviceable for provisioning ships, armies in the field, &c. About 1,000 pounds of fresh potatoes will make 100 pounds of the dry article, which, when properly prepared, will have precisely the flavor and appearance of freshly boiled potatoes.

PRIZE OF BEET SUGAR ASSOCIATION.—The German Association for beet-root industry, at Berlin, has lately offered a prize of a thousand thalers for the solution of the following problem: The yield of crystallized white sugar from the different crude beet sugars is not in a direct ratio to their polarization. What investigations and calculations can be suggested in order to determine, theoretically, beforehand, the yield, in refined white sugar, which any beet-root sugar will furnish?

FACTS FROM VARIOUS SOURCES.

AGRICULTURE IN EGYPT.—A paper was recently read before the Ayrshire (Scotland) Farmers' Club, on the condition of agriculture in Egypt, from which we glean some interesting facts. Although the methods of agriculture are yet primitive, the tenure of lands uncertain, and a system of forced labor obtaining to a considerable extent, Egypt produces considerable crops of grain, cotton, sugar, corn, and clover. Thousands of tons of sugar are yearly exported from Alexandria; while it is stated that the cereals and clover return crops as heavy as those of Scotland, even under what is called in that country high farming. As is well known, this great fertility is promoted by the rich deposits of the Nile in its annual overflows. The water of this stream is brownish in color, and leaves a sediment on the land in the shape of a crust, which prevents evaporation and consequent drought. When it is necessary to overflow lands on a higher than ordinary level, or still further to enrich them, three modes of raising the water are practiced. The first is by manual labor, the second by animal labor, and the third by steam-power. A very common mode of manual labor is to use a leathern basin slung from a pole, which is mounted on pivots and balanced by a large stone as a counterpoise at the other end. The basin end is depressed by the laborer until it dips into the water below; on being freed it is raised by

the counterpoise until the leathern basin comes to the level. The animal labor is sometimes done by donkeys, but generally by oxen, in connection with pumps. The apparatus consists of a wheel turning on a horizontal axis and carrying an endless rope, upon which are placed earthen pots or jars. As the wheel is turned the pots and jars are carried round and fill themselves with water at the bottom, and empty themselves at the top. Steam-power is used in connection with hydraulic pumps.

In the system of rotation of crops, cotton planted in March is cleared from the ground in November; clover follows and matures in February; wheat, beans, or barley are then sown, and reaped in May or June; Indian corn follows, and is reaped in September. Sometimes two crops of clover can be raised up to February, when cotton may follow in rotation. The land is only stirred up by a wooden implement somewhat similar to a plow, but without mold-board. Reaping is done by pulling, or cutting with small hooks; carrying is all done on the backs of camels or donkeys; thrashing, by the treading of oxen; winnowing, by casting the grain into the air to be cleansed of chaff by the wind.

The most serious hinderances to progress in methods of agricultural production lie in the matter of land tenure, and arbitrary and oppressive taxation. If an owner of land is unable to pay a tax levied his property is confiscated, and the tax is discretionary with the Viceroy or with local governors. It is stated that the Viceroy holds about one-third of all the lands of Egypt, the profits of which accrue to him. But this ruler encourages Europeans engaged in commerce, relieving them of taxation and the operation of the laws of the country, every nationality being allowed to set up its own legal tribunal.

The paper concludes with the hopeful statement that there are indications of an important change, and if it would bring about security in the tenure of land, combined with moderate taxation, the agriculture of Egypt might yet become a field for British capital and enterprise.

CAROLINA RICE IN INDIA.—The Agricultural Gazette of India reports five experiments with Carolina and native rice, made under the auspices of the government in the districts of Nagpur, Chanda, Bhandara, and Rajpur, of the central provinces, and the Upper Godavery district, Madras presidency. The reports from the four districts first named represent the Carolina rice as superior to the native in strength and stiffness of stalk, and those from Bhandara and Chanda state that the grain of the Carolina is more firmly set than that of the native, and therefore less liable to be shaken off by high winds, &c. While the report from Bhandara speaks favorably of the productiveness of the Carolina rice under proper cultivation, and commends the large size of its grain, and that from the Rajpur district indicates large results under careful irrigation and manuring, the general expression is that under the ordinary methods of the country the product is no larger than that of the native seed.

In the Upper Godavery district fields of a similar character were selected, the soil being rich, loamy, "approaching cotton-soil in character, but containing a pretty large admixture of sand," and well supplied with water. The field allotted to the Carolina rice was thoroughly plowed 18 inches deep, manured with cow-dung incorporated with the soil, then watered and replowed. The seed was sown July 1; transplanted August 17; crop harvested November 22. On a field having like advantages of manure, water, &c., the native rice was sown broadcast July 20; crop harvested November 15. The chief point of difference in the management of the two fields consisted in the transplanting

of the Carolina rice instead of growing from broadcast seed. Results: Carolina rice—area planted, 3,334 square yards; manure, 5 maunds of cow-dung; seed, 6 pounds 6 ounces; yield, 2,464 pounds of grain, and 896 pounds of straw. Native rice—area, 5,277 square yards; manure, 6 maunds of cow-dung; seed, 308 pounds; yield, 2,480 pounds of grain, and 906 pounds of straw. The rain-fall in the first case amounted to 30.31 inches; in the second to 20.24 inches.

The conductors of this experiment regard it as indicative of great advantage in the introduction of the Carolina rice. The cultivators were quite desirous to obtain the Carolina seed, and directions for its culture are to be distributed throughout the district.

COTTON EXPERIMENTS IN INDIA.—An experiment in growing cotton was made in the season of 1869-'70, on the Khandeish model farm, India. The Hingunghat seed was used, and the crop was neither manured nor irrigated, but was carefully cultivated according to the native method of shallow plowing. The first half of the season was very favorable, but subsequent heavy and prolonged rains seriously injured the crop by beating the cotton from the plant; further loss was caused by scarcity of laborers at the time of picking. The areas of experiment amounted to 152 acres, which gave an average yield of $72\frac{1}{2}$ pounds of cleaned cotton per acre. The fields varied greatly in product, the largest yield being on four acres of rich soil, the debris of a deserted village, which returned 229 $\frac{1}{2}$ pounds of cleaned cotton per acre.

The superintendent of cotton experiments in Sind details experiments with sea-island, Egyptian, and American seed at the Halla farm, thirty-four miles north of Hyderabad. The farm is watered by two canals, which seldom fail to give an abundant supply of water during nine months in the year. The soil used is represented as fit for any purpose, from brick-making to the producing of good mangoes. The sea-island, the first in time of planting, failed entirely. The Egyptian, next in order of planting, germinated well, and flourished until the plants were about nine inches high, when they assumed a sickly appearance. After a prolonged struggle they had, at the time of report, attained a fine, healthy appearance, but had not yielded any cotton. The American is favorably reported, both in respect to the condition of the plants and the yield.

Mr. Strachan is continuing experiments with crossed and hybridized seed, and by the introduction of suitable implements and improved cultivation of the soil.

FIBER FROM COTTON STALKS.—B. F. Thompson, civil surgeon, in a recent letter to prominent officials in India, recommended the utilization of the fiber of the stalks of the cotton-plant in the manufacture of gunny-cloth and other textiles. He claimed that the fiber offered an excellent and cheap substitute for jute, and forwarded for examination specimens of the fiber, and of a gunny-cloth made therefrom, which he thought equal to the best cloth manufactured from fine jute. He also referred to papers bearing on the subject in the United States Agricultural Reports for 1854 and 1859. The letter and accompanying specimens were referred to the fiber committee of the Agricultural Society. Mr. Knowles, of that committee, reported that he had examined the fiber and considers it equal to a middling quality of jute, and that it has neither the color nor the strength of fine jute. Mr. Robinson ranked the fiber with a very low quality of jute, as it seems very deficient in strength and color, but that the fiber might be useful for some of the purposes to which inferior jute is applied.

CASSIA CHAMÆCHRISTI.—Mr. E. J. Peck, of Lindon, New Jersey, writes as follows in reference to this plant:

The "partridge-pea" seed received from the Department was sown on a dry loam soil, nearly all the seed vegetating and producing thrifty plants twenty inches in height. It commenced blooming about August 1, and continued to throw out an abundance of flowers until September 15, and ceased by the 25th. During the time it was in blossom the humble-bee was very attentive, but during the entire time I never saw a honey-bee on the plant, although it was in bloom during the greatest scarcity of honey-yielding plants this section has known for several years. As a plant for bee pasture it has not the least value.

DAKOTA TERRITORY.—Lieutenant E. B. Northup, Seventeenth United States Infantry, in a recent communication to this Department, states that at the Indian agency at Fort Berthold, in the northern part of Dakota, large quantities of melons, cabbages, tomatoes, &c., have been grown this year. At Fort Stevenson, about thirty miles south, the garrison have about 20 acres under cultivation, and have raised, this year, about 300 bushels of potatoes, 50 bushels of onions, 30 bushels of beets, 75 bushels of ruta bagas, &c.

DRAINED LAND AND DROUGHT.—A correspondent at Milo, New York, says: "Drained land has stood our two-years' drought better than undrained, and a free use of gypsum has helped out the crops very much."

SUGAR CULTURE IN AUSTRALIA.—In an address delivered at Melbourne upon the practicability and advantages of sugar production in Australia, Rev. Mr. Holland stated that he commenced the culture seventeen years ago, and after much investigation in regard to the variety of cane best suited to his purpose, he had found the "planter's friend" to be the species best adapted to the general requirements of the colony. It produces sugar and rum of the best quality, while all portions of it can be utilized. The seed and cane are excellent fodder for stock, and paper can be made from the leaves. A company has been formed to export what is called the "half stuff" to England, to be made into paper. The trash (crushed cane) supplies fuel for the manufacture of the sugar. The soil best adapted to the growth of this variety is that of a sandy, loamy nature, on a limestone formation. It yields 20 to 25 tons per acre, and matures within six months; other varieties yield 30 tons per acre, but require two years to mature. There were instances where it produced 25 tons 12 cwt. of stalks per acre, sufficient to give $1\frac{1}{2}$ tons of sugar, 60 gallons of spirits, 40 bushels of seed, and 10 tons of fodder. Mr. Holland estimates a net profit of £750 the first year on a farm of 50 acres, after paying all expenses of machinery, buildings, culture, &c.; the second year the profit is much larger, no extra machinery, &c., being requisite. He urged the formation of a company to engage in the business on a large scale, and expressed the opinion that eventually it would become the back-bone industry of the colony.

GRINDING WHEAT WITHOUT MILLSTONES.—A paper was recently read before the British Association of Science, at Edinburgh, upon a new mill for grinding wheat. It is described as reducing the grain by percussion while it is unsupported and projected through the air. When passing through the machine the wheat is struck by a series of bars moving in opposite directions, which reduce the wheat so quickly to a state ready for bolting that no injurious heat is caused; hence the flour is superior to that obtained by the usual process, and produced at less cost. An Edinburgh firm has one of these disintegrating flour-mills in full operation, and its advantages over the millstones that it supersedes are

stated to be that it rarely needs repairs, requires fewer men, is free from loss by scorching, occupies less space, requires less driving-power, and produces a superior quality of flour.

PREPARATION OF PALMETTO-LEAVES FOR SHIPMENT.—As there has been considerable inquiry upon this subject, we give the directions given by Alexander McRae, commercial agent, Liverpool, England, for gathering, curing, packing, and shipping these leaves. Mr. McRae states that they should be cut and gathered when fully grown, with six or eight inches of the leaf-stalk left on. They should then be dried in the shade, where the air circulates freely, and be prevented from warping or twisting too much by being occasionally piled one upon another and pressed by a moderately heavy piece of plank or other weight. When fully dried they should be tied, compactly, in bundles of forty to fifty leaves, and these bundles afterward made up into bales like cotton, of suitable size and weight for handling and shipping. A long, open, airy shed, with a tight roof, should be provided for drying and baling the leaves; and this shed should be fitted up with tiers of open racks, from floor to roof, constructed after the manner of houses for drying the brush of broom-corn. These racks, of open slats, one above the other, may be six or eight inches apart and three feet wide, with passages between. In gathering the leaves, handle carefully, piling the fans one upon the other in the cart or wagon, taking care not to split or "fray" the webs. The largest and most perfect leaves are, of course, most valuable, and they should be sized and sorted before baling. The drying process must not be carried forward too fast; nor should the leaves be allowed to get wet while drying, as this will render them brittle and impair their value.

COTTON CULTURE IN CALIFORNIA.—A committee of the California Cotton Growers' Association, recently appointed to examine a tract of land near Bakersfield, Kern County, have reported favorably upon its adaptability for the purposes of a cotton plantation, and the association will probably locate their operations there. Upwards of 20,000 acres will be included in the purchase, located in a rich and well-watered region. The cotton experiments in Merced County have thus far proved quite successful. Colonel Strong states that the crop was dependent upon the rain-fall for the moisture by which it was sustained. While the average yield of wheat and barley is stated to be only $2\frac{1}{2}$ bushels, and of corn 15 bushels, the average yield of the cotton will be 375 pounds of ginned cotton to the acre. Colonel Strong thinks that with irrigation the yield would have reached 750 pounds of ginned cotton, and 45 bushels of seed per acre, and that a similar yield would have resulted from the rain-fall of a good season.

IRRIGATION IN CALIFORNIA.—Work is progressing on the San Joaquin Irrigating Canal with considerable energy. Thirty miles have already been excavated, and the work is to be pushed rapidly through the winter. The canal is to be two hundred miles long, commencing at King's River, thence sixty miles to Fresno Slough, thence one hundred and fifty miles to a point near Antioch, on the San Joaquin River. The cut is 40 feet wide, 7 feet deep, including height of bank; width of bank at base, 12 feet; top, 6 feet. Tow-boats are to be run along the canal when complete.

BEET-SUGAR IN CALIFORNIA.—The Alvarado Beet-Sugar Company are now well under way again in the manufacture of sugar. It is stated that the supply of beets this year will reach 800 tons—16 tons to the

acre. The juice yields most satisfactorily. The amount of sugar made last year was 500,000 pounds. This year it is expected to reach 1,125,000 pounds. This will employ the mill about five months. The remainder of the year will be occupied in refining imported sugar. The Sacramento Company will soon be ready for operations. This company expect to realize about 400 tons of beets this year.

WARM WATER FOR PLANTS.—Mr. R. G. Williams, of Vermont State Normal School, writes us upon this subject as follows :

I see some remarks in your monthly report upon the benefit of watering house-plants with warm water. Last winter we had about one hundred plants in the house, and usually gave them warm water, and very frequently water that was much too warm for the hand ; some water at or very near the boiling point, has been poured into the saucers of the pots and just on the sides. We have about forty persons in the family, from different parts of the country, and their testimony is that they never saw so fine geraniums, heliotropes, fuchsias, verbenas, passion-flowers, oleanders. These plants show very marked improvement ; others have flourished finely under the treatment.

All house-plants are better for being watered with water several degrees warmer than the atmosphere in which they are grown.

WHEAT IN TENNESSEE.—A correspondent at Florence Station, Ruthersford County, Tennessee, says :

Good seed-wheat, adapted to our climate and soil, will be of inestimable value to us. Our State average is only about 7.10 bushels per acre. This year the yield will not average $2\frac{1}{2}$ bushels per acre, owing, I suppose, to peculiarities of the season. My usual average is 22 bushels per acre, but this year I got but 4 bushels per acre from good land, well prepared, well put in, and with good seed. Red Mediterranean produced nearly double the yield of the best white wheats. The straw was absolutely worthless, except for bedding stables.

PLOWING IN JANUARY.—In the report of the farm-visiting committee of the Washington County Pennsylvania Agricultural Society, it is stated that Mr. James W. Dickey, of Donegal Township, plows in January for corn, if it can be done, even if snow is on the ground. He once plowed down five inches of snow, and the crop was one-fourth greater than that on the same kind of ground plowed the last of March. Mr. Dickey showed to the committee a field of 35 acres, which he had in corn in 1869, and which yielded 3,200 bushels shelled corn, and 250 bushels buckeye potatoes. This ground was plowed shallow, about four inches deep, and received four strokes of the harrow ; marked one way $3\frac{1}{2}$ feet wide, planted in hills $2\frac{1}{2}$ feet apart, leaving three stalks to the hill ; commenced to work as soon as up with a light cultivator, next used the double-shovel ; worked four times, and hoed every time.

WINE BY STEAM.—At the wine-making establishment of Don Mateo Keller, in Los Angeles, California, a 10-horse power steam-engine is being used to drive a grape-stemmer and crusher of sufficient capacity to stem and mash 50 tons of grapes per day. The machine is a Los Angeles invention. The grapes are cleaned, stemmed, and mashed without breaking the seeds, and dropped into a large trough beneath. A press is to be added to the machine next year, which will extract the juice from the grapes as fast as they are mashed.

BET-ROOT SUGAR.—It is stated in Wood's Monthly Scientific List that there existed in Europe, at the close of last year, 1,507 beet-root sugar-works, of which 483 belonged to France, 310 to the German Confederation, 283 to Russia, 228 to Austro-Hungary, 53 to Belgium, 42 to Poland, 20 to the Netherlands, 4 to Sweden, and 1 each to Italy and the United Kingdom of Great Britain and Ireland.

THE SUNFLOWER.—The cultivation of the sunflower is likely to become popular in India. An Indian authority says:

The oil extracted from the seed is said to be superior to both almond and olive oil for table use, and to be employed in manufacturing woolen goods, soap, and candles, as well as for lighting purposes. The leaves have been manufactured into cigars, having pectoral qualities, and might perhaps be found more efficacious than stramonium. The blossoms furnish a brilliant yellow dye, which stands well. Each acre will contain from 15,000 to 20,000 plants, and the average quantity of seed will be 50 bushels, each of which will give a gallon of oil. The quantity of seed is much increased by dwarfing the plants, the best manure for which is said to be old mortar broken up. The plants should be kept clean and free from weeds, and the quantity of seed required is about six pounds per acre. They should have sufficient interval between them for exposure to the sun, as under such circumstances they become larger and more fully stored with seed.

VEGETABLE CARBOLIC ACID.—Dr. Broughton, the British quinologist, in India, has succeeded in obtaining carbolic acid from a plant (*Andromeda leschenaultii*) which grows in inexhaustible abundance on the Neilgherries. The acid obtained in this way is said to be purer than that obtained from coal-tar, but it is more expensive, for while the latter costs only four shillings a pound in India, the acid prepared from the indigenous plant costs five shillings. Unless, therefore, the process of preparation can be cheapened, the discovery will be of little practical value.

MARKET PRICES OF FARM PRODUCTS.

Articles.	October.		Articles.	October.	
NEW YORK.			BOSTON.		
Flour, State	per bbl.	\$6 25 to \$7 50	Flour, western, superfine	per bbl.	\$5 25 to \$5 75
western	do.	6 20 to 9 25	extra	do.	6 50 to 7 00
Wheat, No. 1 spring	per bush.	— to —	choice	do.	7 25 to 9 50
No. 2 spring	do.	1 57 to 1 61	Corn, yellow, mixed	per bush.	82 to 83
winter, amber, west-			mixed	do.	79 to 81
ern	per bush.	1 70 to 1 75	Rye	do.	75 to 80
Corn, new western, mixed	do.	75 to 78	Barley	do.	95 to 1 00
old western, mixed	do.	— to —	Pork, mess	per bbl.	14 00 to 14 50
Rye	do.	93 to —	prime	do.	11 50 to 12 00
Barley	do.	90 to 95	Beef, mess	do.	8 00 to 12 00
Oats, western, mixed	do.	52 to 54	extra mess	do.	12 50 to 16 00
State	do.	— to —	Lard	per lb.	9½ to 10½
Hay, shipping qualities	per ton.	22 00 to 23 00	Butter, N. Y. and Vt	do.	20 to 32
prime	do.	25 00 to 33 00	Canada	do.	18 to 29
Pork, mess	per bbl.	13 45 to 13 62	western	do.	12 to 20
prime	do.	10 00 to 11 25	Cheese, eastern factory	do.	8 to 14
Beef, mess	do.	7 00 to 11 00	Hay, prime	per ton.	25 00 to 34 00
extra	do.	11 00 to 14 00	Wool, western	per lb.	55 to 62
Lard, extra	per lb.	9½ to 10½	combing and de laine		
Butter, western	do.	10 to 20	fleeces	per lb.	68 to 75
State	do.	15 to 30	tub	do.	— to —
Cheese, dairy	do.	11 to 12½	pulled	do.	40 to 72½
factory	do.	12 to 13½	CHICAGO.		
Cotton, ordinary	do.	17½ to 19	Flour, winter extras	per bbl.	7 00 to 7 75
middling	do.	19½ to 21½	spring extras	do.	5 62 to 6 75
Tobacco, sound, lugs, light			Wheat, No. 1 spring	per bush.	1 25 to 1 30
grades	per lb.	7½ to 8	No. 2 spring	do.	1 21½ to 1 25
sound lugs, heavy			No. 3 spring	do.	1 18½ to 1 19½
grades	per lb.	8½ to 9½	Corn, No. 2	do.	46 to 48½
common leaf, light			rejected	do.	45 to —
grades	per lb.	8½ to 10	no grade	do.	— to —
common leaf, heavy			Oats, No. 2	do.	30 to 30½
grades	per lb.	8½ to 10	rejected	do.	27 to 28
Wool, combing fleece	do.	— to —	Hay, timothy and clover (on		
extra, pulled	do.	61 to 63	track)	per ton.	13 50 to 14 50
Texas, common to me-			prairie	do.	8 00 to 10 00
dium	per lb.	46 to —			
California common	do.	38 to 41			

Market prices of farm products.—Continued.

Articles.	October.	Articles.	October.
CHICAGO—Continued.		St. Louis—Continued.	
Pork, mess per bbl..	\$13 00 to \$13 25	Rye..... per bush..	\$0 68 to \$0 73
prime mess do..	— to —	Barley, winter do..	65 to 90
Beef, mess per bbl..	12 00 to —	spring do..	70 to 90
extra mess do..	13 50 to —	Oats, mixed do..	34 to 40
Lard per lb..	8½ to 9½	yellow do..	— to —
Butter, firkin and tub do..	10 to 20	Hay per ton..	16 00 to 25 00
extra do..	20 to 25	Pork, mess per bbl..	13 00 to 13 25
Cheese, New York factory do..	13 to 14	Lard per lb..	9½ to 10½
western do..	11½ to 12½	Butter, choice do..	25 to 26
western reserve do..	— to —	fair to medium do..	18 to 20
Wool, medium fleece do..	55 to 61	Cheese, factory do..	13½ to 14½
unwashed medium do..	37 to 42	Cotton, middling do..	18½ to 19
tub do..	60 to 73	Tobacco, sound leaf per cwt..	— to —
CINCINNATI.		common leaf do..	7 00 to 8 75
Flour, family per bbl..	7 00 to 7 25	medium leaf do..	8 75 to 9 00
extra do..	6 85 to 7 00	Wool, tub-washed per lb..	60 to 69
superfine do..	5 75 to 6 25	fleece-washed do..	48 to 56
low grades do..	4 50 to 5 25	combing do..	35 to 44
Wheat, No. 1 white per bush..	1 55 to 1 60	pulled do..	— to —
No. 2 white do..	1 50 to 1 60	NEW ORLEANS.	
No. 1 red do..	1 50 to —	Flour, superfine per bbl..	5 00 to 5 75
No. 2 red do..	1 48 to —	extras, (according to	
Corn, No. 1, ear do..	53 to 54	grade) per bbl..	6 50 to 8 50
new ear do..	54 to —	Corn, mixed per bush..	82½ to 84
Rye, No. 1 do..	82 to —	yellow do..	82½ to 85
No. 2 do..	80 to —	white do..	82½ to 85
rejected do..	— to —	Oats, prime do..	51 to —
Barley, No. 1 do..	95 to —	Hay, choice per ton..	34 00 to —
No. 1 State do..	90 to —	prime do..	36 00 to 38 00
Oats, No. 1 mixed do..	34 to 36	Pork, mess per lb..	14 25 to 15 00
No. 2 mixed do..	35 to —	Lard per lb..	— to —
Hay, tight-pressed per ton..	16 00 to 17 00	Butter, choice western do..	20 to —
loose do..	17 00 to 24 00	choice northern do..	33 to 34
Pork, mess per bbl..	12 50 to 13 00	common do..	20 to 25
prime mess do..	— to —	Cheese, choice factory do..	13 to 14
Lard per lb..	9½ to 12½	western reserve do..	12½ to 16
Butter, choice Ohio do..	18 to 22	Cotton, ordinary do..	15 to 16
fair to good do..	10 to 14	low middling do..	18½ to 19½
Cheese, western reserve do..	— to —	middling do..	19½ to 20½
factory do..	14 to 14½	Tobacco, lugs do..	— to —
Cotton, ordinary do..	16 to 16½	low leaf do..	— to —
middling do..	19½ to 19½	medium leaf do..	— to —
Tobacco, lugs, West Va. do..	— to —	SAN FRANCISCO.	
lugs, Kentucky do..	9 to 12½	Flour, superfine per bbl..	6 75 to 7 00
common to medium leaf,		extras do..	7 25 to 7 75
West Va. per lb..	— to —	Wheat, State per cental..	2 50 to 2 70
common to medium leaf,		Oregon do..	2 60 to 2 70
Kentucky per lb..	13 to 18	Corn, white do..	2 35 to —
Wool, tub-washed do..	65 to 67	yellow do..	2 35 to —
fleece-washed do..	50 to 55	Hay, State per ton..	18 00 to —
unwashed do..	40 to 45	Pork, mess per bbl..	20 00 to 24 00
pulled do..	50 to 52	prime do..	19 00 to 19 50
ST. LOUIS.		Beef, mess do..	14 00 to 24 00
Flour, superfine per bbl..	4 80 to 5 20	Lard per lb..	11½ to 13
extra do..	5 25 to 6 50	Butter, State do..	30 to 45
Wheat, spring per bush..	— to —	Oregon do..	15 to 20
winter No. 1 do..	1 60 to 1 75	overland do..	18 to 25
winter No. 2 do..	1 55 to 1 60	Cheese do..	9 to 14
winter No. 3 do..	1 40 to 1 50	Wool, choice do..	25 to 35
Red do..	— to —	inferior to medium do..	15 to 20
Corn, mixed do..	47 to 49		
yellow do..	51 to 52		

Quotations, as nearly as practicable, at the beginning of each month.

METEOROLOGY.

SEPTEMBER, 1871.

[COMPILED IN THE DEPARTMENT OF AGRICULTURE FROM REPORTS MADE BY OBSERVERS OF THE SMITHSONIAN INSTITUTION.]

Table showing the highest and lowest range of the thermometer, the mean temperature, and amount of rain-fall, (in inches,) for September, 1871, as reported by the observers at the stations named. Observations daily at 7 a. m. and 2 and 9 p. m.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
MAINE.								
State Ag'l College..	Penobscot	M. C. Fernald	3	Deg. 79	15	Deg. 31	Deg. 54.4	In. 1.10
Surry	Hancock	O. H. Tripp	3	81	22	39	57.5	.....
Bucksport	do	Willabe Haskell	3	80	15	40	56.2	1.50
West Waterville	Kennebec	B. F. Wilbur	3	81	22	40	58.2	1.66
Gardiner	do	R. H. Gardiner	3	77	15, 22	39	56.4	1.84
Lisbon	Androscoggin	Asa P. Moore	3	80	22	31	56.3	2.00
Standish	Cumberland	John P. Moulton	5	84	23	36	57.0	1.35
Norway	Oxford	H. D. Smith	3, 5, 16	80	22	32	53.9	1.55
Cornish	York	Silas West	6	81	22	32	55.2	1.70
Cornishville	do	G. W. Guptill	6	83	30	40	58.0	1.90
NEW HAMPSHIRE.								
Stratford	Coos	Branch Brown	5	82	22	26	51.3	1.30
Whitefield	do	L. D. Kidder	6	83	22	25	51.0	1.52
Tamworth	Carroll	Alfred Brewster	6	83	22	26	53.8	1.56
Contoocookville	Merrimack	E. D. Couch	6	85	22	30	57.2	1.30
Amoskeag	Hillsborough	Alfred Colby	3, 4, 5, 6	82	22	24	54.5	1.55
VERMONT.								
Lunenburg	Essex	H. A. Cutting	6	88	22	30	55.2	2.01
South Troy	Orleans	J. C. Kennedy	5	87	21	30	53.8	1.23
Randolph	Orange	C. S. Paine	6	84	22	27	52.2	1.61
Woodstock	Windsor	H. Doten & L. A. Miller	5	79	22	28	49.8	1.73
Norwich	do	S. B. Phelps	5	84	22	32	57.2	1.10
Near St. Albans	Franklin	A. H. I. Gilmour	4, 5	80	20	35	53.0	1.60
West Charlotte	Chittenden	Miss M. E. Wing	4, 5	84	22	33	58.7	.....
Panton	Addison	D. C. and M. E. Barto.	5, 6	82	22	34	56.6	2.12
Castleton	Rutland	R. G. Williams	6	82	22	32	54.7	1.25
Bennington	Bennington	G. W. Robinson	6	78	21, 30	32	52.8	1.50
MASSACHUSETTS.								
Kingston	Plymouth	G. S. Newcomb	5, 6	80	30	40	58.3	1.00
Lawrence	Essex	John Fallon	6	83	21	39	56.5	1.18
Milton	Norfolk	A. K. Teele	6	85	22	36	59.7	0.88
Cambridge	Middlesex	Mrs. S. H. Perry	25	81	22	39	59.0	.....
North Billerica	do	E. & W. W. Nason	6	86	22	32	56.5	.....
New Bedford	Bristol	Samuel Rodman	5	75	22	36	57.4	2.25
Do.	do	E. T. Tucker	6	78	22, 23	37	57.7	2.25
Worcester	Worcester	Merrick Bemis	3	77	18	40	53.8	0.90
Lunenburg	do	G. A. Cunningham	6	80	22	39	57.2	1.25
Mendon	do	J. G. Metcalf	3, 5	78	22	35	56.4	.....
Amherst	Hampshire	E. S. Snell	3	78	22	32	54.9	1.30
Williams College	Berkshire	A. Hopkins	6	78	22	30	52.7	1.00
RHODE ISLAND.								
Newport	Newport	W. A. Barber	5	83	22	44	62.0	1.60

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
CONNECTICUT.								
Columbia	Tolland	W. H. Yeomans	5, 6	Deg. 84	22	Deg. 30	Deg. 58.4	2.12
Middletown	Middlesex	H. D. A. Ward	6	82	22	33	55.9	1.92
Southington	Hartford	Luman Andrews	5, 6	77	21	39	57.4	1.40
Round Hill	Fairfield	Rev. W. P. Alecott	5, 6	78	22	38	58.6	1.06
Colebrook	Litchfield	Charlotte Rockwell	3, 4, 6	80	22	32	55.4	.....
NEW YORK.								
Moriches	Suffolk	E. A. Smith	3	86	22	43	63.2	2.03
Warrensburgh	Warren	J. E. Weld	6	84	22	38	57.9	0.90
South Hartford	Washington	G. M. Ingalsbe	6	82	22	34	58.6	2.00
Garrison's	Putnam	T. B. Arden	5	81	21, 22	40	56.5	1.47
Throg's Neck	West Chester	Miss E. Morris	4, 6, 7	85	30	42	62.3	.....
White Plains	do	O. R. Willis	3, 4	75	30	42	58.1	.....
Cooper Union	New York	O. W. Morse	6	79	21	45	62.6	1.85
Brooklyn	Kings	I. P. Mailler	3, 5, 6	78	21	41	60.5	2.00
Flatbush	do	E. T. Mack	6	80	27	41	61.5	3.50
Glasco	Ulster	D. B. Hendricks	6	84	21, 22	33	55.6	1.38
Minaville	Montgomery	D. S. Bussing	6	85	21	34	57.7	.....
Middleburgh	Schoharie	S. W. Roe	6	90	21	32	57.5	0.80
Cooperstown	Otsego	G. P. Keese	6	82	22	26	54.1	1.17
Gouverneur	St. Lawrence	C. H. Russell	5, 6	80	21	27	52.3	1.48
Canton	do	L. A. Lee	5, 6	84	21	31	55.6	.....
North Hammond	do	C. A. Wooster	4, 5	90	21	38	60.7	0.69
Lowville	Lewis	A. J. Barrett	4, 5, 6	82	30	32	53.2	0.94
Cazenovia	Madison	William Soule	5	83	22	32	54.3	.....
Oneida	do	S. Spooner	5, 6	85	21	35	58.0	1.71
Depauville	Jefferson	Henry Haas	4	80	22	31	54.1	3.05
Oswego	Oswego	W. S. Malcolm	5	82	22	34	56.4	1.04
Palermo	do	E. B. Bartlett	6	85	21	31	54.4	1.20
North Volney	do	J. M. Patrick	5	87	21	34	56.4	.....
Waterburgh	Tompkins	David Trowbridge	5	84	22	26	54.5	.....
Nichols	Tioga	Robert Howell	5, 6	86	30	29	66.5	.....
Newark Valley	do	Samuel Johnson	6	94	22	23	53.4	0.50
Himrod's	Yates	G. D. Baker	6	83	21, 22	34	54.7	0.50
Rochester	Monroe	G. P. Hachenberg	5	86	21, 22	42	58.6	0.50
Little Genesee	Allegany	Daniel Edwards	6	85	22	26	54.0	0.50
Angelica	do	C. P. Arnold	4	83	22	27	54.2	0.68
Carlton	Orleans	M. P. Godfrey	5	86	21, 22	36	57.3	1.00
Lockport	Niagara	B. W. Clark	4	84	22	40	57.8	1.40
Buffalo	Erie	William Ives	4	84	21	36	57.9	.....
Jamestown	Chautauqua	S. G. Love	6	83	21	33	54.8	1.30
NEW JERSEY.								
Jersey City	Hudson	T. J. Howard, jr.	6	80	21	39	61.1	2.20
Newark	Essex	W. A. Whitehead	6	78	21	38	60.0	1.99
South Orange	do	W. J. Chandler	6	80	21	33	50.1	2.05
Trenton	Mercer	E. R. Cook	4, 6	80	21	42	63.6	1.57
Rio Grande	Cape May	Mrs. J. R. Palmer	24	82	21, 22	42	61.4	3.62
Moorestown	Burlington	T. J. Beans	2	83	23	40	60.6	1.61
New Germantown	Hunterdon	A. B. Noll	6	82	21, 23	39	58.4	1.93
Readington	do	John Fleming	3	86	21, 22, 23	38	52.8	.....
Greenwich	Cumberland	Miss R. C. Sheppard	6, 7	77	21	42	61.7	1.55
Vineland	do	John Ingram	18	102	21, 23, 30	39	61.5	1.89
PENNSYLVANIA.								
Nyces	Pike	John Grathwohl	3	81	22	31	55.3	1.60
Hamilton	Wayne	J. D. Stocker	3	83	21, 30	38	57.6	0.75
Dyberry	do	Theodore Day	5, 6	80	22	27	52.5	1.18
Fallsington	Bucks	Ebenezer Hance	4	81	30	42	60.6	1.50
Philadelphia	Philadelphia	J. A. Kirkpatrick	4	81	21	43	63.0	1.75
Germantown	do	Thomas Mechan	4, 6	84	21	40	61.0	.....
Plymouth Meeting	Montgomery	M. H. Corson	6	82	22	39	59.9	1.06
Egypt	Lehigh	Edward Kohler	4, 5	87	22	32	60.0	.....
Factoryville	Luzerne	Rodman Sisson	5, 6	84	30	28	54.4	0.80
Reading	Berks	J. H. Kaser	6	83	22	42	62.0	2.34
West Chester	Chester	George Martin	4	83	30	40	58.9	2.35
Parkersville	do	F. Darlington	6	83	22	39	61.5	1.99
Ephratah	Lancaster	W. H. Spera	1, 6	82	30	38	59.6	1.88
Carlisle	Cumberland	W. H. Cook	5, 6	82	22	39	61.3	2.65
Mt. Rock	do	Jacob Lefever	6	82	22	35	59.3	2.22

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
PENN.—Cont'd.								
York S. Springs	Adams	J. H. Marsden	6, 19	Deg. 80	21	Deg. 40	Deg. 59.0	In. 1.55
Tioga	Tioga	E. T. Bentley	6	80	30	22	50.2	0.50
Grampian Hills	Clearfield	Elisha Fenton	5, 6	81	22	28	54.1	1.27
Johnstown	Cambria	David Peclor	5	84	21, 22, 30	34	47.6	3.70
Franklin	Venango	M. A. Tolman	4	84	22, 30	34	56.1	0.58
Queensburgh	Westmoreland	J. M. L. Stump	6	84	21	34	59.7	1.05
Pittsburgh	Allegheny	George Albree	6	81	30	39	61.0	1.50
Connellsville	Fayette	John Taylor	6	85	21	35	60.5	.....
Greenville	Mercer	D. B. Packard	6	80	30	33	55.9	0.50
Newcastle	Lawrence	E. M. McConnell	6	82	30	30	60.5	0.09
Beaver	Beaver	R. T. Taylor	6	81	21	39	59.9	.....
Canonsburg	Washington	William Smith	6	85	30	32	59.0	0.80
DELAWARE.								
Dover	Kent	J. H. Bateman	4	84	22	44	61.1	2.70
Milford	do	R. H. Gilman	13	82	29	39	63.2	2.00
MARYLAND.								
Woodlawn	Cecil	J. O. McCormick	4	82	22	41	61.0	2.55
Fallston	Harford	G. G. Curtis	4	80	21, 29, 30	44	59.3	2.33
Annapolis	Anne Arundel	W. R. Goodman	6	83	27, 30	45	65.2	2.37
St. Inigoes	St. Mary's	James Stephenson	6, 13	80	30	48	66.1	5.08
Woodstock College	Baltimore	A. X. Valente	6	80	22	38	58.8	2.06
Sam's Creek	Carroll	F. J. Devilbiss	6	80	22	35	61.0	1.71
Mt. St. Mary's	Frederick	C. H. Jordan	6	81	21	45	60.4	1.98
Frederick	do	J. K. Hanshaw	6	87	22	45	65.0	1.77
Cumberland	Alleghany	E. T. Shriver	6	81	22	40	61.1	2.40
DIST. COLUMBIA.								
Washington	Washington		13	80	21, 22	45	64.0	1.80
VIRGINIA.								
Johnsontown	Northampton	C. R. Moore	6	82	30	48	66.0	4.70
Capeville	do	Emma C. Townsend	6, 7	82	30	53	70.0	.....
Hampton	Elizab'th City	J. M. Sherman	7	84	29, 30	47	67.4	2.78
Cornor	King George	E. T. Tayloe	4, 5, 7	81	21, 29	48	66.4	3.69
Mt. Solon	Augusta	James F. Clark	6	84	30	32	60.3	2.85
Vienna	Fairfax	Randolph Robey	6, 13	82	30	34	61.1	2.30
Do	do	G. A. Bowman	4	86	30	34	65.4	2.30
Accotink	do	Chalkley Gillingham	4	85	30	43	64.1	2.52
Waterford	Loudoun	Mrs. S. E. Chamberlin	4, 5	85	22	35	63.6	0.40
Piedmont Station	Fauquier	W. A. Martin	6, 13	82	22	36	64.0	3.25
Keswick Station	Albemarle	D. B. Horn	5	90	28	42	64.4	2.50
Lynchburgh	Bedford	C. J. Meriwether	7	81	29	46	65.5	4.00
Wytheville	Wythe	J. A. Brown	7	82	30	37	61.4	3.45
WEST VIRGINIA.								
Weston	Lewis	Benjamin Owens	6, 13	84	30	36	62.2	.....
Cabell Court-House	Cabell	C. L. Roffe	8	89	20	40	65.6	1.00
NORTH CAROLINA.								
Oxford	Granville	W. R. Hicks	13	84	30	50	57.4	4.30
Albemarle	Stanley	F. J. Kron	4, 13	85	29, 30	38	66.2	4.50
Statesville	Iredell	T. A. Alison			30	34	63.6	1.63
Asheville	Buncombe	E. J. Aston	10, 11	77	30	34	61.9	2.40
SOUTH CAROLINA.								
Aiken	Barnwell	John H. Cornish	14	85	30	53	69.8	4.20
Gowdeysville	Union	Charles Petty	6, 11	83	30	51	71.7	3.30
Greenville C. H.	Greenville	Lardner Gibbon	7, 16	86	30	46	70.3	6.70
GEORGIA.								
Berne	Camden	H. L. Hillyer	17	86	29, 30	54	69.3	9.20
St. Mary's	do	Ebenezer Barker	16	86	30	58	75.5	11.98

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum tem- perature.	Date.	Minimum tem- perature.	Mean tempera- ture.	Rain-fall.
GEORGIA—Cont'd.								
Quitman	Brooks	J. L. Cutler	1, 15	Deg. 89	30	Deg. 57	Deg. 75.0	In. 5.65
Atlanta	Fulton	Charles Deckner	3, 15, 18	80	28, 30	49	67.9	2.60
La Fayette	Walker	A. R. McCutchen	2	88	29	43	66.4	1.45
ALABAMA.								
Huntsville	Madison	E. L. Antony, M. D.	8, 10, 11	84	21, 29	52	69.3	3.80
Moulton	Lawrence	Thos. M. Peters	7	82	30	43	69.7	0.43
Selma	Dallas	Dr. Fahs and Miss R. B. Deans.	8	91	30	49	75.5	0.50
Carlowville	do	H. L. Alison	1, 8	88	28	50	73.2	2.24
Green Springs	Hale	H. Tutwiler, LL. D.	7, 8	92	30	48	75.0	1.10
Coatopa	Sumter	S. K. Jennings, M. D.	8	94	30	48	73.6	1.80
FLORIDA.								
Near Port Orange ..	Volusia	S. W. Chamberlin	1, 16, 17	83	9, 27	68	76.8	2.08
Jacksonville	Duval	A. S. Baldwin, M. D.	16	93	30	62	77.6	7.52
Picolata	St. John's	C. F. Powell	1	90	30	65	78.2	.....
Pilatka	Putnam	G. D. Robinson	16, 17	94	30	61	78.1	9.53
Ocala	Marion	Edward Barker	17	96	30	62	74.4	.....
Welborn	Suwannee	G. B. Thralls	1	90	28, 29	68	77.2	.....
TEXAS.								
Clarksville	Red River	J. M. Anderson	11	102	31	69	91.3	.....
Near Clarksville ..	do	Allen Martin	9	91	30	50	73.9	1.68
Houston	Harris	Miss E. H. Baxter	11	96	30	60	79.5	.....
Clear Creek	Galveston	George N. Leoni	10	96	30	63	79.8	3.60
Greenville	Hunt	Samuel Davis	7	93	29	54	77.2	2.75
Sand Fly	Burleson	F. S. Wade	6	94	30	54	77.8	2.80
Bluff	Fayette	Joseph Fietson	18	92	29, 30	62	80.4	2.50
Clinton	DeWitt	A. C. White	6	95	30	57	77.2	5.65
Austin	Travis	J. Van Nostrand	6	94	30	54	76.9	2.61
San Antonio	Bexar	Fred. Pettersen	6	99	30	57	77.7	6.34
LOUISIANA.								
New Orleans	Orleans	Robert W. Foster	8	89	29	56	74.8	7.30
Shreveport	Caddo	J. H. Carter	8, 10, 15	89	29	57	76.7	.....
Ponchatoula	Livingston	H. Collins	8	95	28	55	78.7	6.10
MISSISSIPPI.								
Marion Station	Lauderdale	Thos. W. Storer, M. D.	8, 10	96	28	40	71.4	0.30
Grenada	Grenada	J. S. Payne	7, 8, 9	90	28	46	71.2	1.55
Brookhaven	Lawrence	Mrs. W. E. Keenan	8	92	27	53	74.7	2.30
Holly Springs	Marshall	Thomas B. Coleman	10	.....	.....	.....	.....	0.69
ARKANSAS.								
Clarksville	Johnson	E. Greene	10	94	29	43	71.8	0.30
Mineral Spring	Hempstead	Harmon Bishop	3, 9, 12	90	30	38	70.4	0.75
TENNESSEE.								
Elizabethton	Carter	C. H. Lewis	12	90	29	34	66.3	1.02
Lookout Mountain ..	Greene	C. F. P. Bancroft	7	85	30	45	70.0	1.84
Clearmont	Warren	T. P. Wright	8	84	29	39	66.3	1.10
Austin	Wilson	P. B. Calhoun	10, 11, 12	88	30	36	69.4	3.15
Clarksville	Montgomery	W. M. Stewart	10	88	29	38	65.6	2.55
Trenton	Gibson	W. T. Grigsby	6, 9	92	28, 29	40	69.0	1.70
La Grange	Fayette	W. E. Franklin, M. D.	{ 3, 10, } { 11, 12 }	{ 88 } { 88 }	29	46	69.8	1.70
Knoxville	Knox	J. K. Payne	7	86	29	40	68.9	3.42
KENTUCKY.								
Pine Grove	Clark	Sam'l D. Martin, M. D.	9	89	30	36	65.8	3.97
Louisville	Jefferson	Mrs. Lawrence Young	6	90	29, 30	31	65.2	2.23
Shelby City	Boyle	Howard Shriver	5, 6, 11	88	30	38	67.1	5.22

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
OHIO.								
Salem.....	Columbiana.....	J. E. Pollock.....	3	Deg. 88	22	Deg. 36	Deg. 59.6	In. 0.25
Painesville.....	Lake.....	E. J. Ferris.....	5, 6	80	18, 21, 22	44	59.3	1.20
Baldwin University.....	Cuyahoga.....	J. McK. Pittenger.....	5, 6	85	30	40	60.5	1.50
Adams's Mills.....	Muskingum.....	Charles A. Stilwell.....	6	85	30	34	59.7	0.85
Pennsville.....	Morgan.....	T. J. Bingham.....	5, 6	96	21	38	63.6	0.80
Oberlin.....	Lorain.....	S. Herrick.....	5	88	29	36	59.0	0.30
Sandusky.....	Erie.....	Thomas Neill.....	5	84	30	37	58.5	2.17
Carson.....	Huron.....	Mrs. M. M. Marsh.....	5	86	30	39	61.0	0.05
North Fairfield.....	do.....	O. Burrass.....	3, 4, 5	84	30	37	60.1	0.29
Westerville.....	Franklin.....	Prof. John Haywood.....	6	86	30	32	61.0	0.35
North Bass Island.....	Ottawa.....	Geo. R. Morton, M. D.....	5	89	29	46	63.4	0.27
Marion.....	Marion.....	H. A. True, M. D.....	5	87	30	34	58.9	0.18
Hillsborough.....	Highland.....	J. McD. Mathews.....	6	80	29	39	61.3	0.69
Kenton.....	Hardin.....	C. H. Smith, M. D.....	5	94	27	42	63.8	.....
Bellefontaine.....	Logan.....	William Barringer.....	4	90	29	34	60.5	0.25
Urbana University.....	Champaign.....	M. G. Williams.....	6	87	30	34	61.5	1.25
Bethel.....	Clermont.....	G. W. Crane.....	4, 5, 6, 9	84	30	33	61.9	1.25
Carthage.....	Mercer.....	Prof. W. R. Mueller.....	5	85	30	32	61.1	0.49
Farmer.....	Defiance.....	A. C. Irwin.....	5	88	30	31	61.1	0.40
Jacksonburgh.....	Butler.....	J. B. Owsley, M. D.....	6	87	29	40	63.8	0.50
Oxford.....	do.....	R. W. McFarland.....	6	88	30	31	61.5	0.39
Mount Auburn Ins.....	Hamilton.....	Prof. I. H. White.....	6	84	30	40	64.4	0.69
Cumminsville.....	do.....	J. H. Shields.....	4, 5, 6	77	30	36	60.6	0.90
Cincinnati.....	do.....	G. W. Harper.....	6	88	30	32	64.5	1.08
College Hill.....	do.....	J. W. Hammitt.....	6	90	30	36	65.8	1.00
MICHIGAN.								
Detroit.....	Wayne.....	F. W. Higgins.....	3	87	30	32	58.6	1.04
Monroe City.....	Monroe.....	Miss H. I. Whelpley.....	5	89	29	48	66.4	0.25
Ann Arbor.....	Washtenaw.....	Mrs. N. H. Winchell.....	4	86	29	36	60.3	1.11
Alpena.....	Alpena.....	J. W. Paxton.....	23	75	21	38	55.7	2.00
State Agr. College.....	Ingham.....	Prof. R. C. Kedzie.....	5	96	21	31	58.0	0.79
Olivet College.....	Eaton.....	Prof. A. F. Kemp.....	4	86	29	31	56.8	1.85
Litchfield.....	Hillsdale.....	R. Bullard.....	4, 5	86	29	29	57.9	0.90
Grand Rapids.....	Kent.....	E. S. Holmes, D. D. S.....	5	92	29	31	59.3	1.94
Do.....	do.....	L. H. Strong.....	5	86	29	31	57.4	0.76
Northport.....	Leelanaw.....	Rev. Geo. N. Smith.....	4	88	29	38	57.0	2.25
Benzie.....	Benzie.....	William Wilson.....	4, 5	83	21	31	56.2	2.40
Copper Falls.....	Keweenaw.....	S. H. Whittlesey, M. D.....	1	75	21	31	51.4	1.62
Ontonagon.....	Ontonagon.....	Edwin Ellis, M. D.....	3	72	19	41	56.9	1.00
INDIANA.								
Fort Wayne.....	Allen.....	R. S. Robertson.....	5	90	29, 30	34	62.3	0.50
Aurora.....	Dearborn.....	George Sutton.....	6	92	30	36	64.1	2.65
Rising Sun.....	Ohio.....	Thomas E. Alden.....	4, 6	83	30	36	63.5	1.75
Vevay.....	Switzerland.....	Chas. G. Boerner.....	6	88	30	37	63.9	0.47
Mt. Carmel.....	Franklin.....	J. A. Applegate.....	6	88	29	47	65.6	2.00
Spiceland.....	Henry.....	William Dawson.....	4, 5	91	30	32	60.0	0.28
Laconia.....	Harrison.....	Adam Crozier.....	9	89	30	38	40.9	2.05
Knightstown.....	Rush.....	D. Deem.....	4	89	29	33	63.3	0.60
Beech Grove.....	do.....	William S. Clark.....	6	84	29	35	61.9	0.45
Bloomington.....	Monroe.....	Mallow & Kirkpatrick.....	6	86	30	33	61.7	0.35
New Harmony.....	Posey.....	John Chappellsmith.....	5	89	30	39	65.7	1.36
Merom.....	Sullivan.....	Thomas Holmes.....	5	87	30	39	70.6	.....
ILLINOIS.								
Near Chicago.....	Cook.....	Samuel Brookes.....	5	95	29	34	62.0	.....
Evanston.....	do.....	Oliver Marcy.....	5	89	29	37	60.8	0.66
Marengo.....	McHenry.....	J. W. James.....	5	89	29	29	57.8	0.68
Mattoon.....	Coles.....	W. E. Henry.....	5	97	29	38	66.4	1.25
Sandwich.....	De Kalb.....	N. E. Ballou.....	3	90	29	32	60.5	0.40
Decatur.....	Macon.....	Timothy Dudley.....	9	95	22	34	64.6	0.25
Peoria.....	Peoria.....	Fred. Brendel.....	5	93	29	34	63.9	0.65
Waterloo.....	Monroe.....	Chas. Zeffe.....	4, 9	88	29, 30	39	63.4	0.55
Dubois.....	Washington.....	W. C. Spencer.....	6	93	29	38	68.8	0.23
Galesburgh.....	Knox.....	W. Livingston.....	4, 5	85	21	40	62.5	0.90
Manchester.....	Scott.....	J. & C. W. Grant.....	5	92	27, 28, 29	42	66.2	0.08
Mt. Sterling.....	Brown.....	A. Duncan.....	5	86	21, 30	45	64.7	1.20
Audalusia.....	Rock Island.....	M. B. Bowman.....	3	87	29	31	61.9	0.21

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum temperature.	Date.	Minimum temperature.	Mean temperature.	Rain-fall.
ILLINOIS—Cont'd.								
Augusta.....	Hancock.....	S. B. Mead.....	5	Deg. 87	29	Deg. 36	Deg. 62.5	In. 1.55
Warsaw.....	do.....	B. Whitaker.....	5	93	{ 21, 26, 28, 29, 30 }	44	64.9	1.00
Quincy.....	Adams.....	Frank J. Heance.....	4	92					26	38	64.6	2.60
WISCONSIN.								
Sturgeon Bay.....	Door.....	R. M. Wright.....	5	85	20	35	57.6	0.25
Hingham.....	Sheboygan.....	John de Lyser.....	5	87	29	33	58.7	.....
Milwaukee.....	Milwaukee.....	J. A. Lapham.....	4	91	29	34	58.9	0.60
Geneva.....	Walworth.....	W. H. Whiting.....	4, 5	93	29, 30	34	58.5	0.45
Waupaca.....	Waupaca.....	H. C. Mead.....	2	87	29	32	58.0	.....
Embarrass.....	do.....	E. E. Breed.....	2, 5	86	29	30	58.1	0.37
Madison.....	Dane.....	W. W. Daniells.....	4	88	28	40	59.8	0.47
Edgerton.....	Rock.....	H. J. Shints.....	5	94	29	34	61.3	0.70
Baraboo.....	Sauk.....	M. C. Waite.....	5	90	29	30	59.1	1.50
New Lisbon.....	Juneau.....	J. L. Dungan.....	2	89	29	28	57.7	.....
Bayfield.....	Bayfield.....	Andrew Tate.....	4	86	.....	.....	.....	.....
Mosinee.....	Marathon.....	John O'Donoghue.....	3	83	29	22	54.1	4.90
MINNESOTA.								
Beaver Bay.....	Lake.....	C. Wyland.....	2	81	29	36	55.4	1.29
Beaver.....	Winona.....	J. K. C. Winters.....	2, 3	82	29	32	56.6	2.30
St. Paul.....	Ramsey.....	A. B. Peterson.....	3	87	29	33	58.9	2.02
Afton.....	Washington.....	A. L. Roe.....	.....	.....	29	36	60.5	1.25
Minneapolis.....	Hennepin.....	William Cheney.....	3	88	29	30	57.4	2.25
Sibley.....	Sibley.....	C. W. & C. E. Woodbury.....	8	89	23	25	57.9	0.85
Litchfield.....	Meeker.....	H. L. Wadsworth.....	1	84	23	27	56.4	0.50
New Ulm.....	Brown.....	Charles Roos.....	8	92	29	34	61.8	0.62
IOWA.								
Dubuque.....	Dubuque.....	Asa Horr.....	4	88	29	31	60.5	.....
Monticello.....	Jones.....	R. P. Smith.....	3	92	21	34	64.2	0.50
West Branch.....	Cedar.....	A. M. Russell.....	4	93	29	29	60.7	.....
Bowen's Prairie.....	Jones.....	S. Woodworth.....	3, 4, 5	90	19, 21, 29	40	58.4	.....
Guttenberg.....	Clayton.....	J. P. Dickinson.....	3, 4, 5	90	28, 29	26	58.4	.....
Mount Vernon.....	Linn.....	Alonzo Collins.....	4, 5	89	28	33	62.4	.....
Iowa City.....	Johnson.....	T. S. Parvin.....	2, 4	86	29	30	60.0	.....
Fort Madison.....	Lee.....	D. McCready.....	4, 5	86	29	33	62.5	0.50
Independence.....	Buchanan.....	George Warne.....	4	93	29	27	62.5	0.10
Near Independence.....	do.....	Mrs. D. B. Wheaton.....	5	93	29	30	61.1	.....
Rockford.....	Floyd.....	H. Wadey.....	4	85	29	33	56.9	.....
Ames.....	Story.....	Ernest Adams.....	5	92	20	34	61.2	1.63
Afton.....	Union.....	M. V. Ahsby.....	5	87	26, 29	34	57.0	1.85
Fontanelle.....	Adair.....	A. F. & Julia A. Bryant.....	4	91	27	35	60.1	3.75
Sac City.....	Sac.....	D. B. Nelson.....	4, 8	90	23	30	56.4	2.50
Council Bluffs.....	Pottawatomie.....	Benjamin Talbot.....	5	88	28	35	61.1	1.92
Logan.....	Harrison.....	J. T. Stern.....	2	88	28	28	61.2	3.10
Woodbine.....	do.....	D. R. Witter.....	8	94	28	32	61.1	2.60
Algona.....	Kossuth.....	J. H. Warren.....	4	94	28	32	59.1	.....
MISSOURI.								
St. Louis University.....	St. Louis.....	F. H. Stuntebeck.....	9	89	29	44	67.4	0.26
Hematite.....	Jefferson.....	J. M. Smith.....	9	97	29	42	66.4	0.48
Rolla.....	Phelps.....	Homer Ruggles.....	9, 17	90	29	26	61.6	0.05
Cave Spring.....	Greene.....	T. W. Coltrane.....	4, 8, 9, 25	90	29	32	65.1	0.10
North Springfield.....	do.....	R. H. McCord.....	4, 8	90	27	38	65.7	0.60
Mount Vernon.....	Lawrence.....	Wyatt Harris.....	5	88	27	42	67.4	0.35
Oregon.....	Holt.....	William Kaucher.....	5	91	28	34	64.2	1.13
Corning.....	do.....	Horace Martin.....	4	92	28	33	64.5	0.95
Nevada.....	Vernon.....	P. J. Bond.....	4	90	27	36	67.9	0.40
KANSAS.								
Atchison.....	Atchison.....	Dr. H. B. & Miss Horn.....	8	92	28, 29	36	65.3	1.10
Williamstown.....	Jefferson.....	John M. Cotton.....	2	98	27	34	66.5	2.42
Paola.....	Miami.....	L. D. Walrad.....	4, 5	92	27	35	66.1	0.25
Baxter Springs.....	Cherokee.....	Ingraham & Hayland.....	5, 7, 8	88	27	46	71.2	0.30
Lawrence.....	Douglas.....	F. H. Snow.....	5	91	27	38	67.4	1.49

Table showing the highest and lowest range of the thermometer, &c.—Continued.

State and station.	County.	Observer.	Date.	Maximum tem- perature.	Date.	Minimum tem- perature.	Mean tempera- ture.	Rain-fall.
KANSAS—Cont'd.								
Holton.....	Jackson.....	James Walters.....	4	Deg. 96	28	Deg. 32	Deg. 66.6	In. 1.00
Le Roy.....	Coffey.....	J. G. Shoemaker.....	4, 5	96	27	36	70.0	0.60
State Agr'l College.	Riley.....	B. F. Mudge.....	5	91	27	39	67.2	1.92
Council Grove.....	Morris.....	A. Woodworth.....	5	92	27	38	63.2	1.10
Douglas.....	Butler.....	W. M. Lamb.....	5	95	27	40	68.5	0.60
Holden.....	Sedgwick.....	A. G. Richardson.....	4, 5, 6	90	27	47	67.5	0.20
Burlingame.....	Osage.....	R. M. Hoskinson.....	4, 5	90	27	36	64.5	0.96
NEBRASKA.								
De Soto.....	Washington..	Charles Seltz.....	5	93	23	34	61.4	3.41
Bellevue.....	Sarpy.....	Mrs. E. E. Caldwell.....	5	91	29	34	62.6	1.30
Omaha Agency.....	Blackbird.....	William Hamilton....	8	95	{ 20, 27, 28, 29 }	40	62.9	0.90
Santee Agency....	L'Eau qui Court	G. S. Truman.....	4	97	28	28	62.4	0.70
CALIFORNIA.								
Monterey.....	Monterey.....	C. A. Canfield.....	13	80	18	52	60.7	.....
Mendocino City.....	Mendocino....	A. W. Thornton.....	6	76	10	50	62.9	0.03
Taylorsville.....	Plumas.....	Mary E. P. Ames.....	4	82	18, 29	42	64.1	.....
San Diego.....	San Diego.....	G. W. Barnes.....	23	87	29, 30	53	67.7	.....
MONTANA.								
Missoula.....	Missoula.....	J. M. Minnesinger....	2	89	9, 21	40	63.4	.....
WASHINGTON.								
Cathlamet.....	Wahkiacum..	Charles McCall.....	10	88	9	42	57.9	.....
OREGON.								
Eola.....	Polk.....	Thomas Pearce.....	10	81	7	44	57.9	1.00
Astoria.....	Clatsop.....	Louis Wilson.....	9	76	8	47	56.0	2.36

NOTES OF THE WEATHER.

SEPTEMBER, 1871.

Mt. Desert, Me.—Frost 9th, 21st, and 22d.*West Waterville, Me.*—Frost 14th and 22d; mean temperature 1.69 colder than the average of seven years; rain-fall 1.35 inches less than the average of seven years.*Gardiner, Me.*—Killing frost 15th; month cold and dry.*Tamworth, N. H.*—Frost 9th and 12th; ice 15th; mornings and nights unusually cold.*Strafford, N. H.*—Hard frost 15th; snow on the mountains 30th; drought continues.*Amoskeag, N. H.*—Month cold and calm; severe frost 22d and 23d.*Lunenburg, Vt.*—Frequent frosts; severe 14th and 23d.*Near St. Albans, Vt.*—First frost 14th.*Castleton, Vt.*—Frost 8th, 14th, 21st, 22d, 23d, and 30th.*Kingston, Mass.*—A very dry and cold month.*Worcester, Mass.*—Squall of hail 29th.*Lunenburg, Mass.*—Killing frost 22d; coldest September since 1849.*Williamstown, Mass.*—Severe frost 22d.*Southington, Ct.*—The month has been very dry, and the coldest in eighteen years; 7° colder than last year, and 11° colder than in 1865.*Glasco, N. Y.*—First frost 21st and 22d.*Middleburgh, N. Y.*—Severe frost 18th, 20th, and 21st; the month has been cold and dry.*Cooperstown, N. Y.*—The coldest September in six years; mean temperature 7° lower than in September, 1870; hard frost 21st, 22d, and 30th.*North Hammond, N. Y.*—First frost 8th; hard frost 11th, 18th, 20th, 21st, and 22d.*Cazenovia, N. Y.*—Frost 8th, 11th, 14th, 18th, 21st, 22d, (severe,) 27th, and 30th.*Depauville, N. Y.*—Lowest mean temperature in seven years.*Little Genesee, N. Y.*—Very dry; springs have failed "for the first time since the pale-faces have lived here."*Newark, N. J.*—Month remarkably cool, its mean temperature being 4° below the average of the month for the last twenty-eight years; only seven of the preceding twenty-eight Septembers had so little rain.*Trenton, N. J.*—Frosts 21st, 22d, and 30th.*Rio Grande, N. J.*—Slight frost 29th.*Vineland, N. J.*—Light frost 22d, 23d, and 30th.*Fallsington, Pa.*—Frost 21st, 22d, and 23d; the coldest September in twenty-two years.*Ephratah, Pa.*—Heavy frost 22d and 30th.*Carlisle, Pa.*—Frost 21st and 22d; "a cool and dry month."*Tioga, Pa.*—Heavy frost 15th and 18th; month very dry and quite cool.*Connellsville, Pa.*—Frost 21st, 22d, and 30th.*Beaver, Pa.*—Frost much earlier than last year; month has been dry, and 3° colder than last year.*Dover, Del.*—Frost 21st and 22d.*Woodlawn, Md.*—Frost 21st, 22d, 23d, 27th, 28th, 29th, and 30th.*Emmitsburgh, Md.*—Frost 21st and 22d; month very dry.*Accotink, Va.*—Month very dry and smoky; springs low; an unusual amount of sickness.

Mount Solon, Va.—First frost 22d; first ice 30th.

Albemarle, N. C.—First white frost 30th.

Statesville, N. C.—Frost 27th, 28th, 29th, and 30th—three weeks earlier than usual.

Gowdeysville, S. C.—Frost 29th and 30th.

Moulton, Ala.—White frost 30th.

Picolata, Fla.—Rains frequent during the month.

Welborn, Fla.—Rain on sixteen days; 17th, ground covered with water; cattle "miring in the woods;" the Suwanee River reported 6 feet higher than ever known by the oldest residents.

Blue Branch, Texas.—Rain the 13th—the first since the 8th of June sufficient to lay the dust. "The water-courses were dry." Wells held out.

Ponchatoula, La.—Very hard rain, 18th.

Marion Station, Miss.—Frost 28th; crops have suffered seriously from the limited rain-fall.

Clarksville, Ark.—Slight frost 30th.

Knoxville, Tenn.—First frost 30th.

Elizabethton, Tenn.—Very little rain; streams running dry.

Shelby City, Ky.—Drought excessive to the 12th; vegetation dried up; forest trees suffered; 12th, 13th, and 14th, copious rain; frost 28th, 29th, and 30th.

Adams Mills, Ohio.—First frost 21st—several weeks earlier than usual.

North Bass Island, Ohio.—Earth completely parched; crops suffering from cold and drought.

Westerville, Ohio.—Frosts 21st, 22d, 29th, and 30th.

Urbana, Ohio.—Rain less than for any month for the last twenty years.

Oxford, Ohio.—Smoky from 8th to 30th; frost from 22d to 30th.

Grand Rapids, Mich.—Heavy shower 2d; first frost 6th; hard frost 29th and 30th.

Ann Arbor, Mich.—Frost, 18th, 20th, and 21st.

Grand Rapids, Mich.—Fine weather most of the month.

Litchfield, Mich.—Heavy frost 20th and 21st; springs very low; ground unusually dry; muck in several marshes on fire.

Rising Sun, Ind.—Month very dry; Ohio lowest this year 24th.

Mount Carmel, Ind.—Greatest rain in same time in two years 4th; smoky 13th and 14th; first frost, 21st.

Vevay, Ind.—Twelve mornings foggy; month extremely dry; Ohio River so low that steamers run with great irregularity.

Beech Grove, Ind.—Very smoky 5th to 18th; frost 21st and 22d.

Fort Wayne, Ind.—First frost 8th; heavy frost 21st, 22d, 26th, 28th, 29th, and 30th.

Mount Sterling, Ill.—Month remarkable for drought; pastures dried up and farmers obliged to feed stock; many wells dry.

Sandwich, Ill.—Frost 21st and 29th; the drought exceeds any ever known here.

Chicago, Ill.—Weather fine and cool.

Embarrass, Wis.—Light frosts from 7th to 14th; hard frosts late in the month.

Sibley, Minn.—First hard frost 28th.

Minneapolis, Minn.—"The coolest September in three years, and the driest in five."

Algona, Iowa.—Rain 5th, 9th, 13th, and 15th; frost 28th and 30th.

Independence, Iowa.—"No rains this month; streams very low; wells dry."

Council Bluff, Iowa.—Frost 26th, 27th, and 28th.

Hematite, Mo.—Very smoky 16th, 25th, and 26th; month remarkably dry.

Nevada, Mo.—Month dry and hot; an early frost 27th.

Oregon, Mo.—Sprinkling showers 10th, 11th, and 13th; heavy frost 27th and 28th.

Atchison, Kans.—Very smoky 24th, 25th, and 26th; white frost 27th.

Williamstown, Kans.—Dense haze 26th; heavy frost 27th.

LeRoy, Kans.—"Month dry; ground dry and hard; streams low; but little plowing;" frost 27th.

Bellerue, Neb.—Hard frost 26th.

Harrisburgh, Utah.—"A very dry month."

